VOL. XVIII NEW YORK—THURSDAY, FEBRUARY 20, 1908—CHICAGO No. 8

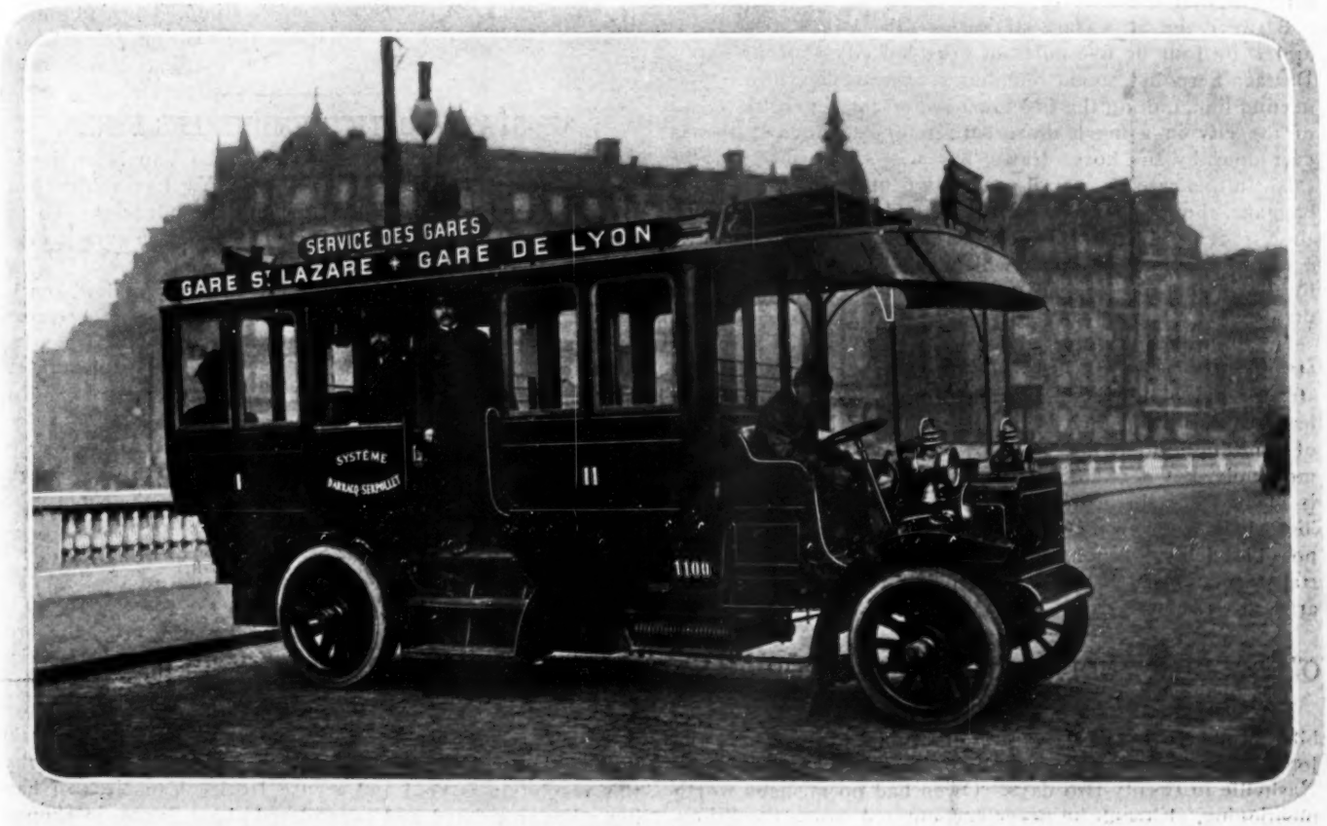
THE AUTOMOBILE

AUTOMOBILE AS A RAILROAD CONNECTION

PARIS, Feb. 11.—There are a score of big cities in Europe with railroad termini so arranged that travelers from different parts of the country are dumped down at widely-separated points and left to find their way from one trunk line to another as best they may. Travelers from the north of England to the British Channel reach London and are turned out at one of the string of stations in Euston Road; north-bound wanderers speed from the Mediterranean with more or less luxury and velocity to find themselves stranded in the south of Paris with no very tangible means of reaching a northern depot. Without any injustice to the horse, the links between northern and southern railroad depots in London and Paris—and on a smaller scale in other European cities—may be described as crude. After eight or ten hours in a Pullman, with all the luxuries that modern travel has yet devised or Europe adopted, it is at least humiliating to be jogged across the streets of a capital by a weary quadruped, often sorely taxed to keep the combined load of passengers and baggage in motion under advantageous circumstances.

Both French and English railroad companies have realized that they owe to their passengers some better means of transportation between city termini than two lean horses, a corpulent driver and a venerable cab. Apart from any possible economy in the journey, those hotels which first replaced the horse service between their own doors and the railroad depot by a series of automobile 'buses, have had no reason to regret the change, in view of the additional publicity the new means of locomotion has brought them. There are now scores of instances in English cities in which both hotel and railroad companies use automobiles exclusively for completing a journey to outlying points or connecting up arrival and departure stations.

Two notable instances of the ousting of the horse have occurred in Paris within a few days, the Orleans line having



STEAM OMNIBUS WHICH HAS REPLACED HORSE SERVICE BETWEEN THE LYONS AND ST. LAZARE STATIONS IN PARIS.

GASOLINE 'BUSES AWAIT ALL TRAINS AT ORLEANS DEPOT, PARIS.

put into service, at its magnificent station overlooking the Seine, a series of cabs and 'buses with special provision for carrying luggage, and the Lyons Company installing a service of steam 'buses between their own southern terminus and the Gare St. Lazare on the north side of the river.

Economic considerations demand that the taxicab should be a light, low-powered vehicle without the capacity for overloading, which is one of the redeeming features of the horse cab. Consequently for railroad work a special type of vehicle has to be designed, with provision for at least four passengers, and some place in which heavy trunks can be carried in safety. The Orleans company has met the situation by 20-horsepower four-cylinder cabs with closed bodies, the top of which is fitted with a metal gallery and built sufficiently strong to carry a heavy load. For larger parties small family 'buses, capable of carrying eight to ten passengers and the usual baggage attending such a group, are kept in constant attendance at the station.

Between the St. Lazare station and the Lyons depot, separated by four or five miles of crowded city thoroughfares, Darracq-Serpollet steam omnibuses now form a direct connecting link, uniting the two most important departure points of the city in a much more satisfactory manner than was ever done by the horse-drawn 'buses or the leisurely horse cab. In this case no special provision is made for passengers' baggage, the 'bus service being designed as a connection for the use of passengers between the two railroad depots. It is a connecting link, however, which will be much appreciated by those who have jogged over the paving stones in the old manner.

In all probability the adoption of the Darracq-Serpollet steamer for railroad work will prove to be the advent of steam automobile traction for the entire city of Paris. The lease of the present city omnibus company is on the point of expiration. It is not yet known who will obtain the next monopoly, but it is absolutely certain that when the change is made the main provision will be that every horse-drawn 'bus shall be taken off the streets of the city with the least possible delay. Among those most anxious to make the transformation is the Darracq-Serpollet combination with an army of steamers.

OLDSMOBILE MUDLARK REACHES NEW ORLEANS.

NEW ORLEANS, LA., Feb. 17.—Ralph Owen and the Oldsmobile "Mudlark No. 3" arrived this morning, having made the journey from New York via Buffalo, Pittsburg, Louisville and Nashville in twenty-two days. Owen had no mishaps worth mentioning, although he never encountered worse conditions than existed between Nashville, Tenn., and New Orleans.

STUDEBAKER CARRYING ARMY DISPATCHES.

With John Holm and William L. Walls as drivers, a 30-horsepower Studebaker carrying a message from General Frederick D. Grant, in command at Governor's Island, to all commandants at army posts between here and Ft. Leavenworth, Kan., left New York Tuesday morning, February 18. The route of the New York-Paris racers will be followed and the car will be driven night and day, each driver taking the wheel for twelve hours. Manager C. F. Redden, of the Studebaker Company, expects the 1,500-mile trip to be covered in ten days despite the adverse conditions.

EARLY JULY DECLARED TO BE A.A.A. TOUR DATE.

While no official announcement has been made on the date and starting point of the annual A. A. A. tour, according to an interview with Chairman Frank B. Hower in the New York *Times*, the week commencing Monday, July 6, has been decided upon, the most probable day being Wednesday, July 8. According to the same authority the start will be made at Buffalo, the run being an Eastern one with stops at Pittsburg, Philadelphia, New York, New Haven, Providence and Boston. Mr. Hower states that a definite announcement on date and place of the tour will be made in the near future.

A. A. A. FEDERAL REGISTRATION ACTIVITIES.

March 12, 1908, at 10:30 A. M., are the day and hour announced for the Federal Registration bill hearing at Washington before the subcommittee of the Judiciary Committee of the House of Representatives. Preliminary to this hearing, a conference of the delegates from the various clubs and associations will be held at the New Willard, Washington, D. C., Wednesday, March 11, at 8:30 P. M., and will be presided over by President William H. Hotchkiss and Chairman Charles Thaddeus Terry, of the Legislative Board of the association. It is urged that every automobile organization affiliated with the American Automobile Association be represented at the conference and hearing. The Automobile Club of Washington will entertain the visiting delegates informally at their clubhouse Thursday evening, March 12.

UP-STATE JUSTICE EMBEZZLES FINES.

ALBANY, N. Y., Feb. 17.—"Uncle" Jesse Van Ness, justice of the peace of East Greenbush, N. Y., has achieved an enviable reputation for his motorphobic tendencies. To put things briefly into the vernacular, "he soaked an autoist every chance he got, and the boys have been laying for him." Their turn has come as a result of an investigation undertaken by Bender & Hinman, attorneys in Albany, who were retained by the taxpayers of East Greenbush to find out what had become of the various sums of money collected by this "J. P." in the shape of fines. Though he imposed limit fines on almost every occasion, it has been found that all but $200 of the money thus collected in the past two years has disappeared. According to the provisions of the law on the subject, such moneys are to be turned over to the supervisors within thirty days, or the latter must sue for it, but in the present instance neither step has been taken, while Van Ness has also violated practically every provision of the law calling for the filing of an accounting with the town board. The account was not itemized or verified, and the provision prohibiting an interested member sitting at a board meeting to pass on his own account was also violated.

As a defense it is contended that the board of supervisors passed a resolution authorizing the justice to spend the money thus collected in fines, but the taxpayers state that this resolution is void and accuse Justice Van Ness of having misappropriated and squandered about $1,000, in support of which they cite specific instances to that effect.

AMERICAN CHAMPION FOR GRAND PRIX

AMERICA will have as her representative in the French Grand Prix, the swiftest and most keenly contested automobile race of the year, one Thomas Flyer racing car, with Montague Roberts at the wheel. The decision to line up against France, Germany, Belgium, Italy and England in the race to be run on the Dieppe circuit the first week in July was only made at the last moment, the engagement of one car being cabled but a few hours before the official closing of entries. News has not yet been received from France as to the exact composition of the teams which will dispute the first race under the new international rule, but sufficient is known of the intention of European factories to predict the appearance of teams from every factory of importance in five European countries, providing probably fifty cars.

The Thomas people state that they will use a stock chassis in the European race, with such adaptations as are necessary for the fast course on which it is intended to be run. The Ostend rule, under which the Grand Prix is being run, allows a bore or not more than 155 millimeters (6.102 inches) for four-cylinder engines, there being no limit to the stroke; total weight must not be less than 1,100 kilos. As the 60-horsepower Thomas Flyer is 5 1-2 inches bore and stroke, it will doubtless be the lowest-powered car in the race, all the European constructors having decided to build up to the maximum bore with a stroke varying from 6 1-2 to 7 1-2 inches. Last year, with engines averaging 7 by 6.2 inches bore and stroke, an average speed of 70 miles an hour was attained by the two leading cars, the highest rate of travel ever reached in a long-distance road race. Despite the reduced bore, many constructors believe they can equal this record. Whether this is done or not, it is certain that the winner will be an exceedingly fast car.

RACING BOARD INSPECTING COURSE ON A POWERFUL PANHARD.

Exact Date Now Fixed for Grand Prix.

PARIS, Feb. 10.—Monday and Tuesday, July 6 and 7, are the days chosen for the two Grand Prix races to be run on the Dieppe circuit by the Automobile Club of France. In all probability Monday will be reserved to the racing runabouts limited to 3.9 inches bore for a single-cylinder car, and Tuesday for the four-cylinder 155-millimeter racers. Though this would be the most natural way of holding the two races, an official decision has not yet been arrived at by the Racing Board. Despite minute precautions, there is an ever-present fear of accident, and should any mishap of a serious nature occur on the first day there is a possibility of the government forbidding the running of the second day's race. It is for this reason that some of the members of the Racing Board would put the big race first. Though there is every probability of as many as 60 competitors engaging in the Voiturette Grand Prix, there is in reality little fear of accident, the course being wide, tarred, stoutly barricaded and guarded by several infantry and artillery regiments, gendarmes and local men.

Weighing-in for all cars will doubtless take place Saturday and Sunday preceding the races. On the Sunday, also, it is intended to hold motor boat races off Dieppe, unless there should be promise of British entries, in which case the nautical races would be held on Saturday afternoon, in consideration of the English objection to Sunday sports.

Details in connection with the course are being pushed forth with rapidity. The race having been held here last year, there is, of course, comparatively little to do. A few more trees may have to be chopped down, a little patching and rolling done, and the entire course retarred. But all this devolves upon the Dieppe authorities, who have undertaken, in consideration of the race being held in their district, to furnish a perfect set of roads. Grandstand arrangements are entirely different to those of last year. Instead of being on the outside of the course, with their backs to the sea, the stands will be on the inside, on the leg of the triangle running from Dieppe to Envermeu. They will be sufficiently near the hairpin turn for spectators to look across the angle and watch the cars approach the "hairpin." At each end of the main stand a high tower will be erected, the privileged occupants of which will have a unique view of the cars running parallel with the seashore, the "hairpin" turn and the straightaway in front of the grandstands. To the rear of the grandstand seats is planned a wire promenade, from which it should be possible to obtain an excellent view of both lengths of road. Gasoline and tire stations will be directly in front of the grandstands, on the outside of the circuit. As the regulations call for all work to be performed by the driver and his mechanic, and there will be only one other station on the course, occupants of the grandstands will always have before them plenty of interesting work.

Connection with the outside of the circuit will be made at the grandstands by a wide tunnel, and at various other points on the course wooden bridges will be constructed for the use of foot passengers before and during the running of the races.

Governmental permission to hold the Grand Prix on the Dieppe circuit has been accorded by Premier Clemenceau. A deputation consisting of the Dieppe authorities and officials of the Automobile Club of France presented their formal request this week and were immediately assured not only of the Government's approval, but of the intention of the Premier to be present if possible. No additional entries have been received for the Grand Prix. For the voiturette race to be run on July 6, ten cars are now engaged, including teams of three from Isotta-Fraschini, Lion-Peugeot, Rolland-Pilain, and one Fouillaron. One voiturette builder, winner of the last race of this nature, at a speed of over 40 miles an hour, has stimulated interest by declaring that he will

MAYOR OF DIEPPE AND RACING BOARD OF FRENCH CLUB.

average 60 miles an hour with a 3.9 bore single-cylinder car. The engine will have a stroke of 5.9 inches and will run at 2,500 revolutions per minute. Such extraordinary results were obtained at the voiturette race in the fall that the constructor's declaration is generally accepted as more than an idle boast. A special trophy valued at $600 has been offered by the *Petit Parisien* to the winner of the voiturette race. The town of Dieppe has also come forth with the announcement that it will subscribe a handsome trophy to be presented to the winner of the Grand Prix, whatever his nationality. An erroneous impression had got abroad that this trophy would only be awarded if the winner of the Grand Prix were French. Special prizes will probably be offered for the fastest flying kilometer.

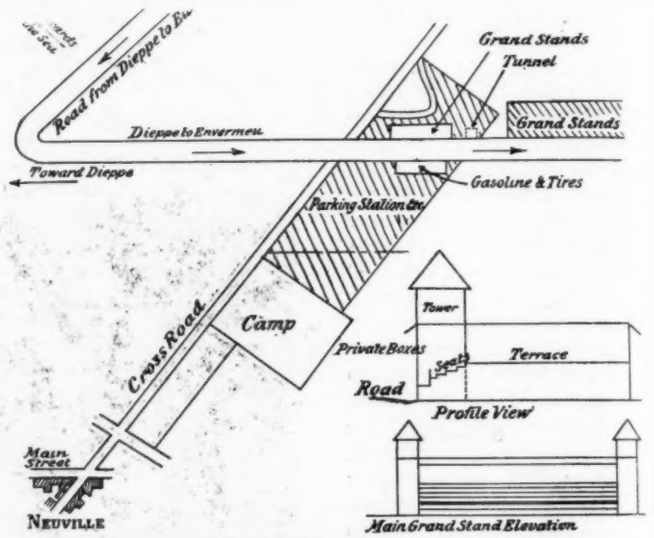
CLUB DELEGATION VISITING PREMIER CLEMENCEAU.

WHAT IMPRESSED MICHELIN IN AMERICA.

PARIS, Feb. 10.—Edouard Michelin, the younger of the two brothers who created the great tire firm, has given a Paris reporter the benefit of some of the ideas which struck him as particularly good during his recent visit to the States in connection with the formation of the American Michelin Company and their new factories at Milltown, N. J.

"While not going to America to study character and conditions, but to work, I was particularly struck with the importance of time in all industrial undertakings. Occasionally we admit time is valuable; but in America time is the great principle of all industrial movements. To build our factory we got in touch with several firms. All of them gave us three prices, for three months, six months, and one year, with enormous differences. It was not a matter of the importance of the labor, they explained, but one of material. Should they use the steel, iron, stone, etc., kept in stock, at prices demanded by those who had the material ready, or should they pass special contracts, causing a delay, but allowing special rates.

"The way in which supply dealers of all kinds interest themselves in their customers struck me particularly. Here



HOW GRANDSTANDS WILL BE ARRANGED ON DIEPPE COURSE.

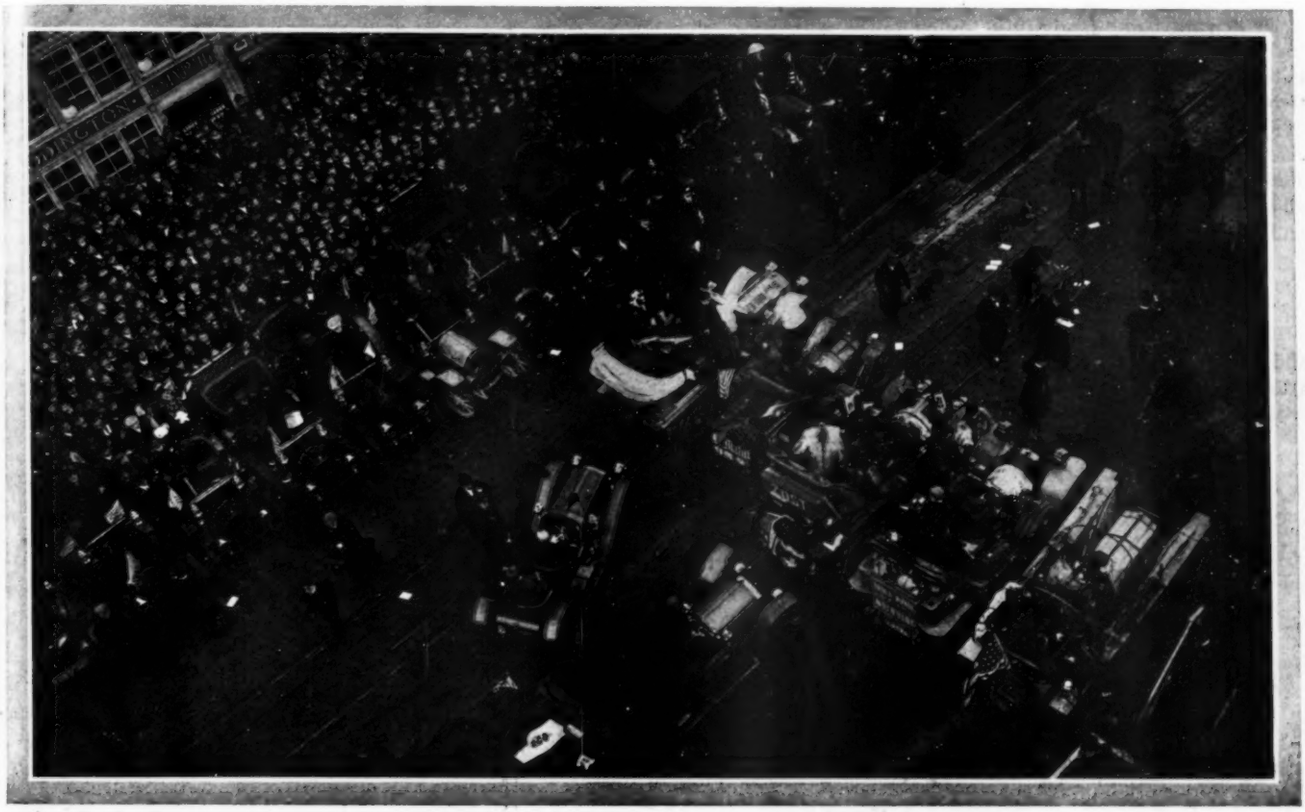
in France we ask for something, a price is stated, we agree, we pay, the goods are delivered, and that is the end of it. There is nothing of that in the States. Every dealer or supplier gives you the full benefit of his experience.

"When we need a fire insurance an inspector comes, asks a few general questions, just for formality, and the company gives its rates, generally very high. In America the examination is the most important part of the affair, and the inspectors are the grand masters of the company. They examine the affair and say, 'We want so much per cent.; but if you will let us organize your factory against fire risks, and make use of our experience, which has covered hundreds of examples, we can give you much better terms'; and often those terms show a reduction of 50 per cent.

"Another good point is the confidence you can have, with but rare exceptions, in the firms estimating to undertake work for you. The base of this honesty is the power of credit. A man operates, in general, with ten times what he really possesses, and he is always seeking to increase his figure. Thus there is necessity for credit, and equal necessity to work squarely, or see the credit lost forever. It is an open, public credit, and the most level-headed man is the one who always keeps on the honest side. It was this system which was one of the causes of the last crisis. The American just coolly cut out a few rotten affairs, that is all."

EARLY DIFFICULTIES ON RUN TO PARIS

ALMOST before the round-the-world tourists had got out of sight of the City of New York on Wednesday, February 12, a thaw set in, transforming a naturally unsatisfactory highway into a veritable quagmire. Instead of reaching Albany the first night, as arranged on the schedule, no car got beyond Hudson, 116 miles out, two even stopping at Peekskill after a run of but 44 miles. Despite the reiterated statement that American roads are not like those of Europe, the foreign drivers were totally unable to realize under what conditions they would have to travel within a few hours of the start. The result was that instead of being unprepared for the run, as some who evidently had had no opportunity of examining the machines in detail have declared, the competitors were overprepared. Quantities of stores that could have been of no possible value until Arctic regions were reached were unwisely carried on the cars the first three days.



HOW THE CONTESTANTS LOOKED FROM AN UPPER STORY OF THE "TIMES" BUILDING JUST BEFORE THE START, WEDNESDAY, FEB. 12.

Very early in the run Roberts showed that he had the fastest car in the Thomas Flyer, the Italian Zust and French De Dion, however, keeping close behind. The Protos with its German crew made good going, but was too ponderous for speed. Godard, who had privately declared before setting out from Times Square that his Motobloc would be in the rear all the way across the United States, thoroughly lived up to his promise, and though having but trifling mechanical trouble, was 100 miles behind the leaders as early as the fourth day. As all the competitors will have to ship on the train at Ogden, Cheyenne, or some more eastelry point if necessary, the Frenchman is probably more sagacious than is generally acceded in abstaining from a race which could not do him one iota of good, and might incapacitate him for the later trip through Siberia, Russia and Europe. Paul Pons and his little single-cylinder Sizaire-Naudin were worthy of a better fate. At Montrose, 40 miles out, rear axle troubles necessitated the dismounting of that organ, an operation occupying three days, and when the work had been done a further tie-up occurred at Red Hook, 96 miles from the starting point. Unable to utter a word of English, with no American agency to which they could apply for parts, the Sizaire crew labored under heavy disadvantages, yet Pons says he will continue.

A TRIO OF NOTABLES.
Hoyt fires starting gun, Morris and Thompson assisting.

After blazing a trail for two days, Roberts concluded that it would be wiser policy to share the honor of leading with his competitors, and accordingly fixed up an agreement with the crews of the De Dion and Zust whereby each car alternately made a track through the snow and mud in which the others could follow. Some idea of the difficulties of traveling through New York State can be gathered from the fact that though taking advantage of every hour of daylight the mileage rarely got above one hundred, the figures for the leaders on the first six days being 116, 90, 69, 87, 109 and 95.

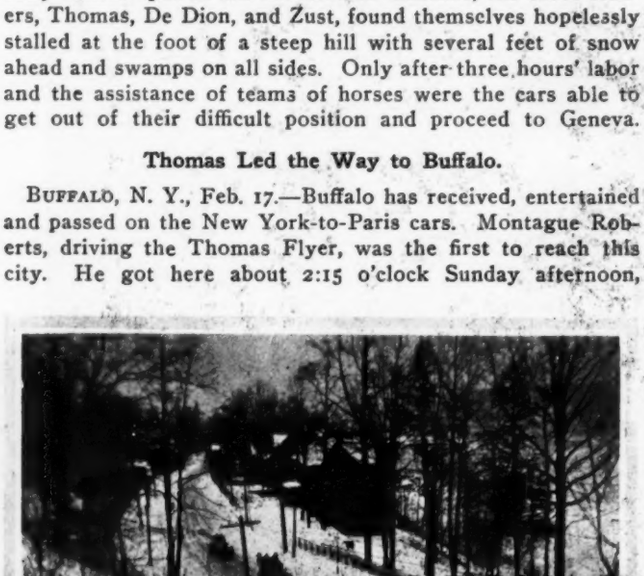
Undoubtedly the most difficult portion of the journey was the run to Geneva on the fourth day. Heavy rain had followed the fall of snow, giving a surface which alter-

THOUSANDS SAW THE START OF THE LONG RUN.

nated between twelve inches of mud and snow drifts from two to three feet in depth. At Dismal Hollow, an appropriately named spot in the Montezuma marshes, the three leaders, Thomas, De Dion, and Zust, found themselves hopelessly stalled at the foot of a steep hill with several feet of snow ahead and swamps on all sides. Only after three hours' labor and the assistance of teams of horses were the cars able to get out of their difficult position and proceed to Geneva.

Thomas Led the Way to Buffalo.

BUFFALO, N. Y., Feb. 17.—Buffalo has received, entertained and passed on the New York-to-Paris cars. Montague Roberts, driving the Thomas Flyer, was the first to reach this city. He got here about 2:15 o'clock Sunday afternoon,



ABOVE YONKERS, ALONGSIDE HUDSON, TRAVELING EXCELLENT.

something like two and a half hours ahead of his French competitor, the Dion-Bouton. The Zust, flying the Italian flag, got in Buffalo at 5:15 o'clock Monday morning, registered at the Western Union office, and, finding nobody here to welcome them, the drivers passed on towards Cleveland. The Italians believed the other two cars had got right on, but when ten miles along the lake shore learned otherwise. The Thomas was met at Williamsville by representatives of the E. R. Thomas Motor Company and the Diamond Rubber Company, with whose tires it is equipped. The Pierce Company lent all local assistance to the foreigners.

Leaders Nearing Chicago; One Car Quits.

After seven days' running, Roberts had reached Toledo, distance 785 miles, with the De Dion 29 miles behind at Fremont and the Zust making a moonlight run from Cleveland to overtake the faster cars. The German Protos put into Erie for the night. Godard, still refusing to be hustled, stabled his Motobloc at Buffalo, thoroughly satisfied with his performance. After every possible attempt to repair its broken differential, the little Sizaire-Naudin has been withdrawn from the run, after covering but 96 miles. It was impossible to obtain a new rear axle in this country.

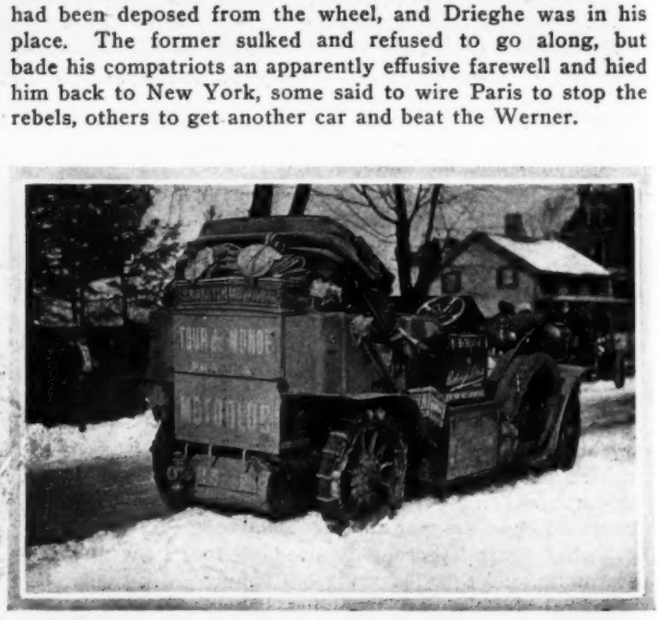
Interrupted Progress of the Werner.

PHILADELPHIA, Feb. 17.—A man may be French and a daredevil, and may even have been the first to suggest the New York-Paris race, but that does not signify that he is capable of running an automobile safely. Such, with much gesturing and shrugging of shoulders, is a free translation of what M. Drieghe, representative of a Paris newspaper, says about M. Lelouvier, who ran the Werner independent entry over

ROBERTS AND THOMAS CAR LED THE WAY TO BUFFALO.

from New York on Wednesday, and, according to his companions—M. Hohmann bears out M. Drieghe's statements—demonstrated that he wasn't familiar with the game.

Barring counters and swings, the two days spent here waiting for the Quaker City Automobile Company's men to whip the Werner back into shape were a regular Donnybrook Fair performance. Verbal battles in pure Gallic were numerous, and when the start was made Saturday morning Lelouvier had been deposed from the wheel, and Drieghe was in his place. The former sulked and refused to go along, but bade his compatriots an apparently effusive farewell and hied him back to New York, some said to wire Paris to stop the rebels, others to get another car and beat the Werner.



PONDEROUS, THOROUGHLY-EQUIPPED, SLOW-GOING MOTOBLOC.

CLEVELAND'S SHOW ATTRACTIVELY SUCCESSFUL

CLEVELAND, Feb. 17.—It didn't look much like depressing times at the opening to-night of Cleveland's seventh annual automobile show. Never before in the history of Cleveland shows was there so large and brilliant a crowd and never before such a varied and brilliant display as were to be seen in Central Armory.

"There are only two cities in the country that have anything at all on Cleveland in the line of auto shows, and those are New York and Chicago," said a man this evening who has attended similar events for years. This year the show committee spared no expense to make this the most attractive local show on record. They imported from New York M. A. Singer, who has had charge of decorating Madison Square Garden for several previous shows, and they gave him almost unlimited leeway to make this the best ever. The color scheme is white and gold. Canopies in white are draped all around the building. The pillars through the center are white. Along the railings of the gallaries and clustering around the pillars in the center and outlining the signboards are lights shaded by tulip shaped art glass. The ceiling is draped from the center in gold and white. Surmounting the railings of the gallery are posts with Nernst lamps around, and under the gallery are rows of gold and white lights, while the chief lighting effect comes from a dozen huge globes of incandescents hung from the ceiling. The entire effect is lighter and brighter than ever before. The arrangement of the floor spaces differs from that of previous shows. There are no center aisles. Instead there are the posts through the center with 12-foot aisles at the sides.

HOW THE CLEVELAND SHOW LOOKS FROM CENTRAL ARMORY GALLERY.

The Cleveland show committee undoubtedly made a wise move in delaying the show until February instead of holding it in the circuit of big national shows. The financial feeling is much better than it was two months ago, and the dealers all report that the prospects for business are growing brighter every day. The curtailment of outputs of many of the big makers had made some of them worse off for prompt deliveries than ever before. Even people who had plenty of money were afraid to do business two months ago, where now they are satisfied with the outlook and are ready to close deals.

One of the noticeable points about the show this year is the predominance of the six-cylinder. Last year but three "sixes" were shown at the Cleveland show, and none of this type was built by Cleveland factories. This year the Winton factory is committed entirely to "sixes"; the Peerless, the Stearns and the Royal all have their big models, while among the out of town "sixes" on exhibit are DeLuxe, Thomas, Ford, Olds, Pierce Great Arrow, Stevens-Duryea, Chadwick, Premier, National and Stoddard-Dayton.

Of course comparatively little is on exhibition here that has not been shown at previous big shows. Paul Gaeth, who has catered heretofore largely to his home trade, but this year has gone after business in many sections of the country, exhibited his 1908 models at New York and Chicago, but also reserved two or three new ideas for the Cleveland show. One of these is a device for starting the motor on the spark with a make-and-break type of ignition. A new model, known as the Tourabout, has a low hung forward slanting top and a "V" shaped removable glass windshield, the whole design of the car being with a view to reducing the wind resistance to a minimum. Another new Gaeth model is a sort of a semi-limousine. For winter use the rear portion of the car is closed up tight, while for summer use the large rear and front window can be removed and the side windows, which are in two sections, also come out, giving free circulation of air on all sides.

This year there are no racing cars, or at least cars that are described as such. In fact, there are few novelties. One of the most interesting is what is said to be the first steam auto built in this country, by Achille Phillion in 1890 for adertising purposes, and exhibited at Tattersall's, Chicago, in 1892. The list of the exhibitors is as follows:

AUTOMOBILES.

Winton Motor Carriage Co., Cleveland.
Peerless Motor Car Co., Cleveland.
The White Co., Cleveland.
Garford Motor Car Co., Elyria.
Elmore Motor Car Co., Clyde, O.
Gaeth Auto Co., Cleveland.
Rauch & Lang Carriage Co., Cleveland.
Price Carriage Co.: Baker Electrics.
H. S. Moore: Stoddard-Dayton.
Chisholm & Phillips Auto Co.: Stevens-Duryea.
R. H. Magoon Motor Car Co.: Chadwick, Jewell, De Luxe.
Hall Bros.: Cartercar.
Ohio Motor Car Co.: Stearns, Cadillac, Columbia (gasoline), Columbia (electric), Detroit Electrics.
Standard Automobile Co.: Packard, Buick.
Metropolitan Motor Car Co.
Olds Motor Works, Lansing, Mich.
Woods Motor Vehicle Co., Chicago.
Leonard Motor Co.: Jackson.
Byrider Electric Mfg. Co., Cleveland.
Oakland Motor Car Co.
Brush Runabout Co.
Wentworth Motor Car Co.: Ford.
C. M. Chatche & Co.: Wayne.
Reese Motor Car Co.: Corbin, Royal-Tourist, Columbia (electric).
George S. Patterson: Premier, Reo.
T. C. Whitcomb Auto Co.: Rambler.
Studebaker Auto Co., South Bend, Ind.
Auto Shop Co.: Franklin, Thomas.
Cayuga Motor Car Co.: National.

ACCESSORIES.

Fisk Rubber Co., Chicopee, Mass.
Diamond Rubber Co., Akron, O.
B. F. Goodrich Rubber Co., Akron, O.
Goodyear Tire & Rubber Co., Akron, O.
Ohio Rubber Co.
Jones Speedometer Co., N. Y.
Warner Instrument Co., Beloit, Wis.
Veeder Manufacturing Co., Hartford, Conn.
National Carbon Co., Cleveland.
Perfection Spring Co., Cleveland
Charles E. Miller, New York.
S. F. Bowser & Co., Ft. Wayne.
American Ball-Bearing Co., Cleveland.
N. Y. & N. J. Lubricant Co., New York.
Gabriel Horn Mfg. Co., Cleveland.
Sprague Umbrella Co., Norwalk, O.
K. & W. Ignition Co., Cleveland.
Westinghouse Elec. & Mfg. Co., Pittsburg.
Ferro Machine & Foundry Co., Cleveland.
Howe Scale Co., Illinois City, Ill.
Columbia Refining Co., New York.
Echo Horn Co., Cleveland.
Hartford Suspension Co., N. Y.
J. P. Davies Co., Dayton, O.
Cleveland Tanning Co., Cleveland.
Standard Welding Co., Cleveland.
Simpson & Grey, New York.
Collster & Sayle, Cleveland.
George A. Rutherford Co.
Auto & Supply Co.
Austro-American Separator Co.
L. J. Mueller.
Continental Agency Co.
William Taylor Son & Co.
Crawford & Soper.

SOUTH WANTS A. A. A. TOURISTS TO TRY ITS ROADS

NEW ORLEANS, LA., Feb. 15.—The cry of the South for the A. A. A. tour for 1908 is becoming louder and louder. The South thinks that she ought to have it this year, and the contention seems to be justified. But as the West is also making a strenuous effort for this tour, the opposition is much greater. The East has had the tour for two seasons now, and the protests from the other sections of the country are timely. Local automobilists are of the opinion that more real good can be accomplished by holding the tour in some other section of the country than the East. They argue that the East and Central Northern States are far ahead in regard to the automobile and its running mate—good roads. The spirit of good roads improvement is just in its infancy in the South, and such a tour as that of the A. A. A. will undoubtedly do much toward fostering this movement and giving it a healthy start.

The tour just completed by Ralph Owen in his Oldsmobile "Mudlark No. 3," from New York to New Orleans, has been watched with more than ordinary interest by automobilists all over the South, and, in fact, in the whole country. The route selected by Owen partially was a virgin one, as far as the auto is concerned, but he made excellent progress, despite the weather conditions and the season.

Already a number of prominent automobile enthusiasts in this city and other Southern cities are advocating the use of the route taken by Owen as a good one for the next Glidden tour. At any rate, the result of his tour will doubtless have much to do with the selection of the route when the time comes. Southern autoists contend that in the A. A. A. the South gets little recognition.

Several other routes have been suggested by prominent local members of the Louisiana Automobile League. One plan is to effect a compromise with the West, and make a Western-Southern tour, beginning, say, at Denver and ending at New Orleans. Another is to make the start from New York, follow the Coast States to Atlanta, and then swerve westward. All may rest assured that the South will make strenuous efforts to land the Glidden tour either for this year or next. They are willing to let the West have it this year, if the South can be assured it for 1909. And it looks as if they might get it, for 'tis a "solid South" for the A. A. A. tour.

North Carolina Has a Route for A. A. A. Tour.

CHARLOTTE, N. C., Feb. 18.—The Greater Charlotte Club, an industrial organization, has submitted to the American Automobile Association a route for the next Glidden tour, to include many Southern cities. The club is very anxious to have the automobile tourist come through the South, contending that as good roads can be had in this section as in any part of the country, and believing that to have the tourist touch various Southern cities will have a great effect in securing better roads for the South.

The American Automobile Association, through its Touring Board, has assured the Greater Charlotte Club that its proposed route will be carefully considered by the committee having the matter in hand, and that the South's merits will be given due consideration.

The route as outlined for the tour is over a country with ample hotel accommodations at intervals of 100 to 150 miles, which is necessary for the several hundred contestants and officials. The proposed route begins at Buffalo, the starting point, and will reach as far South as Atlanta, at which point the route will turn back northward.

The cities included in the route are Cleveland, Akron, Columbus, Dayton, Cincinnati, Ohio; Lexington, Frankfort and Louisville, Ky.; Nashville, Murphysboro, Chattanooga, Tenn.; Rome, Atlanta, Athens, Ga.; Greenville, Spartanburg, S. C.; Charlotte, Winston, N. C.; Danville, Lynchburg, Staunton and Fredericksburg, Va.; Washington, Baltimore, Philadelphia and New York City, back to the starting point.

NEW JERSEY AND ITS TROUBLESOME AUTOMOBILE LAW

NEWARK, N. J., Feb. 17.—Exactly what will be the outcome of the various conferences between the automobilists and the State officials concerning a revision of the present so-called Frelinghuysen law remains to be decided.

Last week Senator Frelinghuysen introduced at Trenton a set of amendments to his own law, the registration fees being raised from the present rates to the following scale:

Class.	H.P.	Fee.
First	11-15	$3
Second	16-20	5
Third	21-25	10
Fourth	26-35	15
Fifth	36-50	20
Sixth	51-70	25
Seventh	71-90	35
Eighth	91-120	100

The drivers' license fees are raised from $1 for drivers of vehicles below 30 horsepower and $2 for drivers of 30 horsepower and above to the following scale: $1 for first-class, $2 for second-class, $3 for third-class, $4 for fourth-class, $5 for fifth-class, $10 for sixth-class, $15 for seventh-class, $25 for eighth-class.

To-day W. C. Crosby, chairman of the legislative committee of the New Jersey Automobile and Motor Club, and R. A. Greene, representing the dealers of the State, visited Trenton and had a conference with Governor Fort, Senator Frelinghuysen and Commissioner J. B. R. Smith. Senator Frelinghuysen stated he would be favorable to a new schedule calling for $5 for anything from 1 to 19 horsepower, $10 for 20 to 39 horsepower, $15 for 40 to 59, and $25 for 60 or greater horsepower machines. It was also decided to issue no manufacturers' licenses except to New Jersey dealers.

Reciprocity in registration for automobilists from other States was announced by the State official to be impossible at this time. Apparently the present administration considers that the automobilist should contribute most liberally to the upkeep of the highways, but the impression continues to prevail that visitors from other States will be fewer than ever in New Jersey this year.

Commenting editorially, the Newark *News* says:

The general criticism of the proposed amendments lies in the fact that they aim solely at increased revenue, rather than greater safety for the traveling public, and in doing so exact tolls from the automobilists in general that are hardly equitable. • • • In this connection it is only fair to ask why the automobile is the only vehicle which must pay for the wear entailed upon the roads. Granting that it is more destructive to macadam than others, it is probable that more wear is entailed by horse-drawn vehicles, because they are so much more numerous. Certainly roads were worn before automobiles were dreamed of, and certainly roads are worn to-day by "sharp shod" horses and the steel tires of wagons and carriages. It would seem, therefore, that if road users are to keep roads in repair, which is entirely logical, all vehicles should pay an equitable tax. It may be popular to shoulder the entire burden on the motorist, but it hardly squares with one's sense of justice.

PROBLEMS IN THE REPAIRING OF AUTOMOBILES

By THOS. J. FAY, E.E., Pres. Society of Automobile Engineers

IT would seem a simple matter to replace a broken part in an automobile, using the broken part as a pattern to go by. The duplication of the part may be a plain task, requiring no great skill; but it does not of necessity follow that the repair so made will be saisfactory.

Consider, for instance, a *cardan* shaft for, say, a 30-horsepower car, with a diameter of 40 mm. and of regular contour. It would be very easy to duplicate the size in a new one, using the old shaft as a guide in the process. This is not to say the new shaft would be the equal of the one displaced, the materials might not be of the same quality.

A repair then does not consist in merely duplicating the part from the *size* point of view. The *materials must be duplicated as well,* or, better yet, since the displaced shaft showed lack of staying qualities, to use a better grade of materials in the new shaft would be more to the point. On the other hand, to use a greater section of the same, or an inferior grade of materials, would not be a justifiable procedure for several reasons, among which the question of the increase in weight is one never to be lost sight of. If a car is made of inferior materials, the question of the quality of the materials to use in the repair of the same is still an important matter, since to prevent future rupture of the same parts would be the important matter.

A car may be *truly good* in the main, while the same car may be most unsatisfactory on account of the repeated failure of some one or two of the important parts, thereby causing service interruptions and costly repair bills.

It is the repair man who can remedy such matters, because it is to the repair man the car will go in quest of balm for its wounds. It is the repair man who should alleviate the distress of the suffering autoist. If the automobilist is accorded no more than *further license* to put up with additional interruptions of service at additional cost, *'tis not a repair at all.*

Things That Have to Be Determined.

Does it come within the province of the repair man to determine as to the adequacy of the strength of the parts? Not of necessity. Indeed, there is no need to determine as to the *facts!* If the parts rupture, they are not of the requisite strength.

The history of the failure will determine much towards clearing up the difference as between a rupture due to a clear accident and that involving the inferiority of the material. It might be said, instead of inferior material the section is below the requirements; this is not the best way to look at the matter, since, if the materials are not of the best, using a better grade of material has the effect of rendering the section adequate without increasing the weight.

But, supposing the material is of the best to be had. Even so, it will be possible to attain additional strength by a *heat treatment.* In this way it will still be possible to keep the weight of the car within the original limits. If the weight question is not kept in mind there is no telling where the car will end from the weight point of view.

If, on the other hand, the materials are of the best possible to use and they are heat treated, to afford the maximum strength, yet with all the parts fail to sustain the load, it would be a reasonable inference that the section should be increased.

It does not follow some incongruity of design may be at the seat of the evil. There may be a shoulder, an abrupt turn, or perhaps a lateral, fixing the point at which the stresses will be concentrated. A little thought, some slight alteration, and the difficulty will disappear.

Is it worth while to the repair man to thus expend *gray matter?* Is it not his plain duty? Certainly! For why is a car sent to a repair shop, if not to be put in good repair? Surely a fault in the car, such as will lend uncertainty to its performance, renders it otherwise than in good repair.

It is not proper to fall back on the presumption of original defect. If the owner of a car wants the same put in good repair, the order includes all faults, original or incidental to service. Of course, this is not to say that one should redesign every car that comes in for repair. This is not the point at all.

The point is that if a member ruptures, and it is to be replaced, some effort should be made to render the repair of a permanent character. *"Once well done, twice done."* If a little investigation will end in the disclosure of the fault in design at the bottom of the failure, to take the time is not only desirable, but essential.

If it is plain that the replacements should be of materials at least as good as the materials failing in *normal* service, it is equally plain that the repairman should pursue some course consistent with the needs of the occasion.

True, it would not be possible to have a thorough investigation of the ruptured parts made each time a car is entered for repair; but it would be possible to follow at least one of two courses. That is to say, it would be desirable to know what the respective makers use by way of materials in the various parts of their cars; or, to provide certain standard grades of materials, for the respective parts in the absence of definite knowledge in relation to the practice of the respective makers.

These are not matters beyond the pale of plain practice, nor would one have to stay up o' nights to the tune of midnight oil in quest of the requisite amount of information. Surely it is well worth while.

Value of Good Material in Repair Work.

The question of the price of good material for use in repair work is a matter of almost no moment at all, because the proportion of the whole cost of a repair, directly chargeable to material, is generally less than ten per cent. Whether or not the ten per cent. is halved or doubled is certainly secondary to the matter of a permanent repair.

If a repair shop desires to be particular about this matter of the material, a very simple and quick way to ascertain the required quality of the material to be duplicated might be as follows: Take discs of standard grades of materials of known characteristics, say, one inch in diameter, and possibly one-quarter-inch thick (thickness of no great importance), polish one side of the discs and, with a magnifying glass (power of the glass twenty diameters), compare the parts to be replaced with the standards until they match up. It will, of course, be necessary to polish a spot on the parts to be replaced to render the comparison more certain.

Care should be exercised to carefully mark the respective standards, thereby to know of what materials they are composed; he who depends upon memory skates on thin ice. The magnifying glass of the power, as above given, may be had at any first rate optician's at a cost of about twenty dollars.

It is not even necessary to know the *chemical composition* of the materials of the standard discs, or much besides, provided the materials are of staple brands of the different grades, readily procurable, with some certainty.

The method is but an approximation, not to be regarded as a fine test of the products; it is purely relative, but it does serve a very useful purpose. Certainly there are other more exacting methods of establishing the facts, but they take more time, require more skill, ending in more uncertainty in the hands of the busy practitioner.

It takes a little practice to render one proficient in the use of a twenty to one glass, the lens being scarcely more than 1-8-

inch in diameter. It is something to have good light, and a clear north exposure may be superior to artificial light; but to invariably resort to the same source of illumination may be a point in favor of uniform results.

Generally when a shop awakens to the fact that the methods in vogue are not in keeping with up-to-date practices, the first shot out of the box is to go to extremes. The end is as the frog in the well. The best way is to creep—then walk—get used to somewhat more exacting methods, and persist.

Conscientious repair work is no more necessary than honest banking methods, *but it is no less a necessity;* the shop that does pursue an honest and skillful course will be prosperous long after the other kind *lies slumbering in oblivion.* This is not to say the price of the repair should be low, the price question is a separate matter to be governed by the cost of the work and the profit desired.

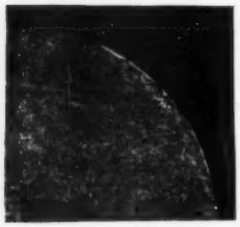


FIG. 1.

If, however, the price is to be the same if the quality of the work is good or otherwise, then dishonesty runs rampant in the latter case. At all events, to claim to be doing things in a skillful way, with facts to the contrary, is but to dig a grave, and *thereby hangs a tale.*

The question of how the respective materials will look under the glass is not a matter to worry about, since it will be plain to the investigator, when the part to be replaced, looks like some one of the standard discs. To be able to match up, it is desirable to provide discs of the various grades of materials usual to automobile practice, they being as follows:

(I) Mild Bessemer steel.
(II) Basic Open Hearth steel.
(III) Acid Open Hearth steel.
(IV) Acid Open Hearth steel (Basic bottom).
(V) Nickel steel.
(VI) Chrome Nickel steel.
(VII) Chrome Vanadium steel.
(IX) Swedish Iron.
(X) Crucible steel = (III), (V), (VI), (VII), (VIII).

The chemical composition of the various steels will depend upon the service to be rendered and the process. Under the glass at twenty diameters it will not be possible to tell as to the process by which a product may be fabricated, but it will be possible to note the difference as between (I) and (V), or (II) and (VI) without great skill.

It will also be easy enough to pick out (IX) from say thirty carbon steel.* *These are not matters of maximum importance,* if only one can be sure of procuring the various grades of steel of uniform *known* qualities and be advised of the abilities of the respective grades of steel.

With a view to showing the extent to which the various grades of steel do differ in fact, even though the differences are not perceptible to the naked eye, some micro-photographs of the various steel products will be offered.

It is also true that the effect of *heat treatment* shows very clearly in the micro-photographs, as will be seen by an inspection of those offered for the purpose.

Fig. 1 shows the micro-photograph of a specimen of basic open hearth steel under the conditions, viz.:

Magnifications	350
Etched	deep
Heat treatment	Quenched at 950° C. / Annealed at 550° C.
Metalloids	low
Carbon	0.35%

This is a very poor micro-photograph of a grade of steel that is far from desirable for use in crankshafts, which is what the steel was used for. It is not that the chemical composition would be regarded as undesirable; for such is not the case. The fault lies in the *open* and non-silky nature of the appearance of the fracture. It is a question if basic open hearth steel will be nearly so good as the strictly acid fabrics, in any case; especially for crankshafts. The physical properties of basic (35 carbon) steel may be set down about as follows:

Tensile strength in pounds per square inch	78,500
Elastic limit in pounds per square inch	60,000
Elongation per cent in 8"	25
Reduction of area, per cent	55

The above approximations will hold, only if the steel is well fabricated and is carefully heat treated in accord with the specifications. The same grade of steel in the normal state would probably show physical properties as follows:

35 CARBON BASIC O.H. STEEL (NORMAL)

Tensile strength in pounds per square inch	78,500
Elastic limit in pounds per square inch	28,500
Elongation per cent in 8"	24
Reduction of area in per cent	54

The repair man is likely to use the steel in the normal state, with the result that *the repair will scarcely be permanent.* But it is also easy to see how the builder of the car may do the same thing, thus fully accounting for the need of repairs. Let us take this same 35 carbon steel and examine it from still another point of view; it is a product much used in automobile work; we cannot well know too much about it.

35 CARBON BASIC O. H. STEEL: TREATED

Tensile strength in pounds per square inch	130,000
Elastic limit in pounds per square inch	26,000
Elongation per cent. in 8"	2.00
Reduction of area in per cent	4.50
Treatment: Water quenched at 900° C.	

Obviously the steel can be rendered as brittle as glass; it has a wide range of properties; the carbon contained renders the steel very susceptible of heat treatment; therefore, skill is essential to success in the use of any such fabrics. The fact that the steel is *basic* renders its treatment a matter of far greater concern, since it is to the basic steel we owe much by way of inferior steel, due to the use of inferior ores. It might be said, the inferior qualities of this class of materials are being emphasized; not necessarily in repair work, which is the subject; if basic steel is the product that fails in a given part, some better grade of steel should be substituted.

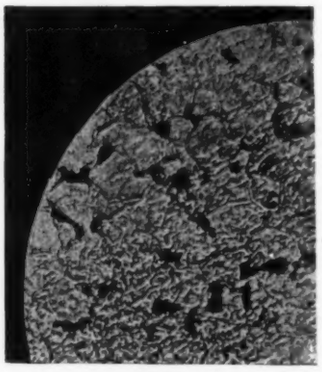


FIG. 2.

To know what to do it is necessary to take into account the qualities of the product failing, that better products may be substituted if any there are to be had. A *suspension bridge* of lead wire would not hold at all. Increasing the amount of lead would not solve the problem. *Use better material* for the purpose.

It is not to damn lead for its failure, it is to censure the user there for his lack of judgment! A great many people do not seem to see things in this way, but the users of automobiles do not see wherein it is for them to foot the bill if there is a basic mistake in its selection.

Nickel Steel and Its Peculiar Characteristics.

Fig. 2 shows a micro-photograph of a specimen of nickel steel, the data of which is as follows:

Magnifications	350
Etched	Deep.
Condition	Normal
Metalloids	Low
Carbon	.012
Process	Basic
Structure	Open

*Thirty carbon steel! This is to express the carbon content, in points. One point is equal to one one-hundredth of one per cent., thus, 0.001%; hence one hundred points equal one per cent.; thus, 1.00%.

Surely, it would be a great mistake to pay ten cents per pound for such a product as this micro-photograph depicts. It has the name, but that is all. This is the class of steel that gives to the *genus*, nickel steel, the reputation it seems to labor under. True, this steel would be improved in appearance by *heat treatment;* equally true, a better grade of nickel steel would show far more improvement as a result of heat treatment. It is no license to use an inferior product, merely because heat treatment *might* mitigate against the evils of its composition, or the manner of its fabrication.

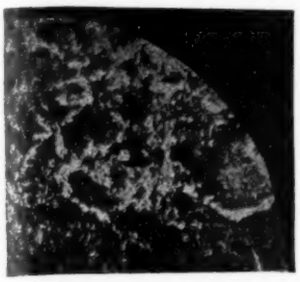


FIG. 3.

The fact that the metalloids are low is no criterion, since the ores of which steel is made are of the very inferior grades. If a part in a car fails, and it is of nickel steel, it may be of the grade of the same as here depicted; in which event it would scarcely be necessary to depart from the use of nickel steel in the repiacement, if the replacement is of nickel steel of a truly good quality. Fig. 3 shows still another specimen of nickel steel, the data of which is as follows:

Magnifications	350
Etched	Medium
Condition	Annealed at 800° C.
Metalloids	Low
Carbon	28 points
Process	Basic
Structure	Open

Crankshafts of such steel might be advertised as of nickel steel, but if they fail to thrive in service the repair man will be justified in looking about in quest of a better grade of nickel steel, rather than to conclude that nickel steel will not serve the purpose.

As to the Failure of Nickel Steel.

If the parts are of nickel steel, and the quality of the same is such as to warrant one in pronouncing it *standard*, then failure in service, under normal conditions, would indicate that a different *genera* of steel should be used in the repair. Unless, perchance, the original product was injured in treatment, or not treated at all. If it is plain that the nickel steel would only end in further trouble, later on the only thing to do is to change to a grade of steel of improved characteristics.

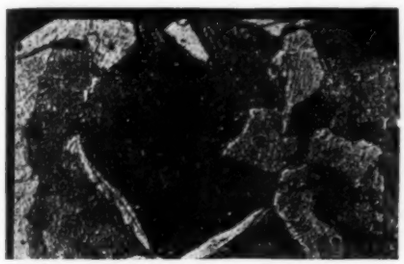


FIG. 4.

The next choice might be vanadium chrome steel; if by some means the same could be had of an assured quality. This is not a matter of certainty, because this class of steel is very new, little understood, in dispute, as to its relative virtues, and frequently the fabric of the basic open-hearth process. At all events, it will be well to see in a comparative way what such steel looks like, with a view to which the micro-photographs are here given. The first will be Fig. 4, the data of which is as follows:

Magnifications	350
Etched	Deep
Condition	Over heated
Metalloids	Low
Carbon	28 points
Vanadium	0.18%
Chromium	1.00%
Process	Basic
Structure	Crystalline

It would hardly be possible to find a piece of steel that would be worse for use in any part of an automobile than the steel in the condition as here depicted. It could be pointed out that the specimen was overheated, *on purpose*, to be able to observe its micro-structure; it can also be said it might not be easy to avoid this structure in practice. Fig. 5 is another vanadium chrome steel specimen, the data of which is as follows:

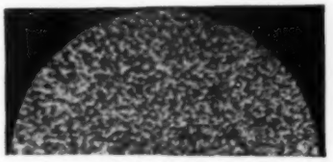


FIG. 5.

Magnifications	50
Etched	Light
Condition	Annealed at 800° C.
Metalloids	Low
Carbon	28 points
Vanadium	0.18%
Chromium	1.00%
Process	Basic
Structure	Uniform

To be able to observe the difference as between viewing the structure at low magnification and with the higher magnifications, Fig. 6 is given of the same grade of steel but with the higher power. Data of Fig. 6 (higher magnifications than Fig. 5):

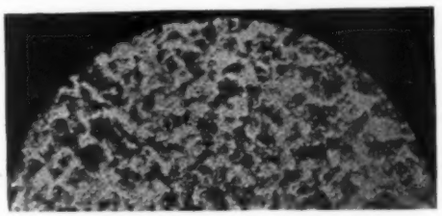


FIG. 6.

Magnifications	250
Etched	Light to medium
Condition	Annealed at 800° C.
Metalloids	Low
Carbon	28 points
Vanadium	0.18%
Chromium	1.00%
Process	Basic
Structure	Uniform

Since the structure is more plain at 250 diameters than at 50 diameters, it might be argued that to increase the magnifications to a very large extent would be beneficial; this is not necessarily true, since the detail is lost. Later on the author will show to what extent this may be so.

The degree of etching is a matter of some considerable moment that must not be overlooked, for if the etching is deep the appearance of the structure will not be the same as if the etching is light. Fig. 7 is given of the same steel, with a deep etching, and slightly greater magnifications, as follows:

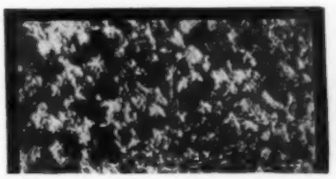


FIG. 7.

Magnifications	350
Etching	Deep
Condition	Annealed at 800° C.
Metalloids	Low
Carbon	28 points
Vanadium	0.18%
Chromium	1.00%
Process	Basic
Structure	Uniform

(*To be continued.*)

HOW THE AUTOMOBILE CHEAPENS DELIVERY SERVICE

COMPARATIVE cost is undoubtedly the deciding point in any change from horse-drawn to motor delivery services. Business houses generally in all large and growing cities acknowledge the inadequacy of horse-drawn vehicles, and have to admit that at times of greatest stress the horse is least able to perform what is required of it. Two main difficulties have stood in the way of any changes, the first being the want of experience in the new field and the lack of accurate figures regarding cost of operation and upkeep of motor vehicles, and the second the lack of trained drivers at a marketable price. Users of horse vehicles know, or imagine they know, how much it costs to deliver goods by horse vehicles, but are utterly uninformed as to the cost by means of mechanical vehicles. Those who have made the experiment and have the cost of mechanical transportation at their finger tips in the majority of cases show no disposition to communicate them for the benefit of prospective users.

"We have an average of five letters a day," said the head of one large firm using motor vehicles exclusively, "all asking for figures on the cost of operation of our cars. It is impossible for us to reply to them all, and we have made it a rule to ignore every request. Besides, we have done the experimenting, taken whatever risk there was to be taken in the early days, and consider we have a claim to all the benefits."

If pushed back to hard facts and plain figures, it is generally found that the liveryman's knowledge of cost per mile is far from being as exact as would be expected after years of experience. While keeping close watch on all matters of expenditure and conducting his business as scientifically as the majority of those devoting their activities to the search for dollars, few business firms delivering goods by horse-drawn vehicles can state exactly how much they are paying per ton mile to deliver their products to customers.

Some figures in this connection which, though not showing the actual cost per mile, reveal the comparative cost of horse and automobile delivery service, have been obtained in actual use by the Logan Construction Company, of Chillicothe, O. For four successive days in November one of their air-cooled delivery wagons was substituted for the horse-driven force of a large business house and close watch kept of its expenditure.

On the first day the 20-horsepower air-cooled delivery wagon, with a rating of 1,500 pounds paying load and a possible speed of 15 miles an hour, replaced three wagons and delivered 210 parcels in a time of three hours. Fuel consumption was three gallons of gasoline and 1 1-2 pints of oil. Three wagons were displaced on the second day, and 155 parcels were delivered in 3 hours 45 minutes, with a consumption of 3 1-2 gallons of gasoline and 2 pints of oil. On the third day four wagons were displaced, and 439 parcels delivered in a total time of 4 hours and 45 minutes. Four and a half gallons of gasoline and 2 pints of oil were consumed on this day. On the fourth day four wagons were again displaced, 270 parcels delivered in 9 hours 15 minutes on a consumption of 9 gallons of gasoline and 2 pints of oil. This gives a total for the four days of 981 parcels, delivered in 20 hours 45 minutes, with a total consumption of 20 gallons of gasoline and 7 1-2 pints of oil. A greater initial outlay is called for with a mechanical service than for a horse-drawn force, but even deducting interest for the larger amount of capital invested, the saving is enormously greater for the automobile. Working the experiment out on a month's basis would give the following comparative result:

Cost of one 20-horsepower wagon		$1,800
Gasoline and oil	$17.82	
Driver's wages	60.00	
Battery and repairs	6.00	
Tire wear	5.00	
	$88.82	
Cost of three wagons		$450.00
Cost of three horses		450.00
Harness		75.00
		$975.00
Board, stabling and shoeing three horses	$75.00	
Wages of three drivers	150.00	
Repairs, etc.	15.00	
	$240.00	
Cost of horse service		$240.00
Cost of automobile service		88.82
Difference in favor of automobile		$151.18

This comparison of one automobile delivery wagon and its equivalent of three wagons, horses and crews, shows an initial investment of slightly more than double in the case of the former, but this is more than offset by the fact that the running expense under normal conditions would hardly exceed one-third. It must also be taken into consideration that when worked steadily day after day, the provision of three horses would not be sufficient to keep three wagons in constant service. At least four and sometimes five would be necessary, thus increasing their first cost.

THE ADVANTAGES OF USING THE ENGINE AS A BRAKE

By C. F. REDDEN, Studebaker Automobile Company.

BRAKING by means of the engine is at times particularly desirable, and it is surprising that more automobilists do not use this method. The regular set of brakes with which a car is equipped are, of course, sufficient to hold it on any decline. Yet, the continued use of the regular brake generates a large amount of heat, which not only wears the brake, but tends to burn it out.

The braking effect of the engine should not be used when it is required to stop suddenly. On a long, gradual descent a certain amount of braking effort is offered by the engine when the electric current is switched off. On a steeper descent the gears should be shifted to either low or intermediate, and the clutch will gradually let in.

In braking the car by means of the engine the greatest care must be used, and the car itself and the motor should be as nearly at the same speed as possible. The papers have been filled with numbers of accidents, in which the cars have been reported to have gotten away. I have traveled, I believe, in my Studebaker over some of the worst and hilliest country roads in Westchester county, and I often take the precaution to shift into low speed before descending any particularly steep or dangerous hill.

Authorities seem to differ somewhat on what causes this braking effect, but the logical supposition is that it is caused by the compression of the gases in the cylinders. However this may be, the careful use of the engine as a brake is certainly to be encouraged. It has the good practical advantages of saving your own brakes for emergencies and sudden stops, and gives the motor time to stop and cool off, and all this is of considerable importance to the man who is trying to get the most out of his car. This not only means less expense, but less time in the hands of the repairman.

CONCERNING GYROSCOPIC ACTION OF FLYWHEEL—A REPLY

By E. F. McNUTT.

ON page 75 of the January 16 issue of THE AUTOMOBILE appears an article by Rodger B. Whitman, entitled, "The Gyroscopic Action of a Flywheel," which sets forth the effects which such action has on the behavior of an automobile. While Mr. Whitman supports his claims by very substantial and convincing proofs, the conclusions which he draws from these proofs are not always entirely correct, nor does he take into consideration all of the factors which enter into the case.

Before taking up the discussion it would be well to state those two well-known laws which, as Mr. Whitman says, govern the gyroscopic action of a rotating body:

1.—If a rotating body be moved along an arc of a great circle, the axis of the rotating body will tend to revolve and assume a position parallel to the axis of the great circle and perpendicular to its plane of rotation.

2.—The axis will tend to assume a position such that the direction of rotation of the body will be the same as that of the great circle in which it is moved.

These laws have been proved by experiments and are beyond question. Taking up, then, the gyroscopic action of an automobile flywheel and its resulting influence on the action of the car, we will assume the average high-powered automobile, with its engine forward, its crankshaft horizontal and lengthwise of the car, and its flywheel turning over towards the left.

Taking first this car on a short, horizontal turn toward the left (which is the direction in which nearly all of the circular track races are run), let us see just what would be the result of the gyroscopic action of the flywheel. We have then in the flywheel a rotating body moved in an arc of a horizontal great circle, counter clockwise; by Law 1, as stated above, the axis of the flywheel will tend to assume a position perpendicular to this horizontal plane of rotation; and by Law 2 the position which it will tend to assume will be such that the flywheel will also rotate counter clockwise, tending to lift the rear wheels and thus destroying their traction. As Mr. Whitman says, such action in the case of a racing machine with a heavy flywheel, taking a sharp turn at high speed, might well result in a force which the weight of the machine could not hold in check; and besides this there are two other forces which tend towards the same effect. Mr. Whitman says: "Attempts to explain accidents to racing cars while rounding turns are often based on the assumption that the gyroscopic tendency of the flywheel will be to roll the car over, but that this is not the case may be deduced from the fact that a car rolling over sideways will be rotating in a vertical plane about a horizontal axis, and that as the axis of the flywheel is horizontal, *it will remain in this position rather than tend to change it.*" That this is not true in this case may be very easily shown. The rolling of the car due to the effects of centrifugal force would be over towards the outside of the curve, and the plane of this rotation would be vertical and transverse of the car. The flywheel would then tend to assume a position such that its axis would be perpendicular to this plane of rotation, and its direction of rotation the same as that of the rolling of the car, thus exactly reversing the position of its axis; and as the axis might rotate in either direction in a vertical plane parallel to the length of the car in order to assume this position, it would choose that of the least resistance, which would be that direction (over towards the front of the car) in which it tends to move, due to the horizontal turning of the car as explained above, thus adding to the force tending to lift the rear wheels from the ground; also this rolling, for obvious reasons, would concentrate the weight of the car on the two outer wheels, and through the forward motion of the car, partially arrested by the turning moment, most particularly on the outer front wheel.

So far I have agreed with Mr. Whitman that the real cause of accident to racing cars is due to loss of traction, and its resulting dangers, caused by the gyroscopic action of the flywheel; but now let us take the same car turning towards the right. The plane of rotation of the great circle would be horizontal and its direction of rotation would be clockwise, so that the flywheel would tend to assume a position with its axis vertical and its direction of rotation also clockwise, thus having a tendency to lift the front end of the car. But the effects of centrifugal force will also be felt here, and in this case they will oppose the tendency to lift the front wheels. The rolling of the car would be over towards the outside of the curve and in a plane transverse to the car so that the axis of the flywheel would be perpendicular to this plane, and the direction of rotation of the flywheel would be the same as that of the great circle, so that the flywheel would resist this force due to the turning of the car and would tend to maintain its position, thus tending to hold the car level, as would also be the result of the tendency to concentrate the weight of the car on the outer front wheel, the combined effect of these two forces being more than enough to counteract the tendency of the flywheel to raise the front end of the car.

Such, then, is the true explanation of the gyroscopic tendencies of an automobile flywheel and its resulting effects on the movements of the car. It is obvious that if races on circular tracks were run in a clockwise direction instead of following the horse, whose anatomy is equally efficient in either direction, around the track clockwise, many "unavoidable" accidents would be avoided and a much higher rate of speed maintained.

SOME OF THE DEFECTS OF AUTOMOBILE SALESMANSHIP

By ERNEST COLER.

THE rapid development of the automobile industry no doubt is responsible for the present-day inefficiency of automobile salesmanship in that the dissemination of automobile knowledge, by the trade press and otherwise, has overtaken the educational process by which competent automobile salesmen are, or should be, made.

This is not a kind statement, to be sure, but it is based upon facts that should be clearly recognized so that they may be taken as a starting point from which wholesome reform is to proceed. A short time ago I had occasion to discuss automobile selling methods with a friend, a mechanical engineer of keen observation and an experience including other fields besides that of the automobile, and the comments made by him brought automobile selling in so strong and unfavorable a contrast to the methods employed in standard engineering fields that the writer decided to make a close investigation, the results of which are given in the present article.

Were an acute observer to go down to New York's engineering district—Cortlandt or Liberty street—and then come

up to Gasoline Row on Broadway, he would discover the first distinction in the personnel of the selling force. The automobile salesman seems to be recruited from God knows where; his comprehension of the merits, and especially of the demerits of the product entrusted to his tender care, is hazy; his arguments for or against types of clutches, three or four-point suspension, shaft or chain drive, alloy steels, two or four-cycle, high or low-tension ignition systems, etc., have no depth, are meaningless, being hearsay arguments, devoid of actual knowledge. His superficial command of the demerits of his line renders him unable to meet properly the strictures made by the prospective customer, and he must, therefore, forego the opportunity to turn the weak points into apparent strong advantages.

Recruited from doubtful sources, how rarely does our automobile salesman attempt to strengthen his knowledge and fortify his position by close study of the standard literature and the leading periodicals of the trade? He glances over the pages, dallies over race meets, only when the day is stormy, when he is filled with ennui, tired of matching coins, flirting with the typewriter or running up the telephone bill. The repair shop, where he can learn things better than anywhere, he visits only in case of dire necessity; the mechanic in overalls is uncouth, therefore he has little dealing with him. The car itself on the streets only suggests joy rides, and the business is "the game."

Let us take a look at our cousin, the machinery salesman. It will do us good. He is an engineering-school graduate, perchance a graduate from the firm's draughting room, or a particularly keen mechanic, caught young and educated by the firm for its selling force. The salesman meets you with a slide rule; he has stacks of blueprints which *he can read*. You come there in search of a certain machine to do certain work. At first it seems that what you want is something special; but after studying your requirements the salesman educates you in his product; he will show you that his machine will do your work as you want it, but perhaps in a slightly different manner than you had anticipated. In the engineering field the purchaser is generally represented by his chief engineer, or by the master mechanic, and the salesman is actually instructing experts such as these. This selling system is the same for steam engines, pumps, gas engines, electric machinery, tools, etc. Imagine the high-salaried superintendent of a large machine works going to Liberty street to purchase certain machine tools, and have the salesman point out to him something quicker, more accurate, or cheaper, actually reviewing the operations gone through in the superintendent's factory to produce a given result, and then he will show him how in his own product a slight variation is more advantageous in results.

What would it be called in the automobile field if the sales manager were suddenly called upon to assume the position of chief engineer, as recently happened in a large hydraulic works; if the manager of a distant sales branch were called to the factory, to be the chief draughtsman, as in a big refrigerating-machinery plant; or if the chief inspector were sent to a Southern city to open and conduct a branch office, as happened in a large gas-engine company but recently?

A statement was made a short time ago by a New England concern that this firm considered as its business the building of high-grade machinery, the body and furnishings to be considered auxiliary and to be adapted as much as possible to suit the ideas of the customer. Such a statement places the firm in the proper light, and were the selling force organized along similar lines this firm would be in the same class as builders of other engineering products.

The one example is the direct antithesis of the other. The engineering salesman knuckles down to be superior in specialized technical knowledge to his customer; if the latter is the purchaser of the backbone of the automobile trade, the great medium-priced car, he digs into its literature, subscribes to a couple of magazines, reads and digests them. In case of the high-priced machine, the chauffeur is consulted, and the (our) salesman keeps mum.

Will this state of affairs continue? Two causes will combine to change it—first, the increasing keenness of competition coupled with the growing automobile knowledge of the public; and, second—stronger than the first—the influx of the commercial vehicle. The first cause will operate by virtue of the fact that automobiles are approaching one another very closely in appearance, in reliability and in price. Purchasers no longer are falling all over themselves to get a car of some kind, satisfied if it has four wheels and some brass work; they demand that not only one trip but dozens of them be made without the necessity for adjustments, whereas, in the old days a trip without some mishap was unheard of. The commercial vehicle will demand a change because the purchaser will be represented by the superintendent of transportation, the chief engineer, or by a consulting engineer. Records will be kept of the car's performance, item by item; styles, fads and fancies, in ignition, transmission, etc., will play no part. Duplicate orders will be given only for cars that have stood the test, probably without even a visit to the salesroom. The argument likely to be advanced, that a certain system is popular in pleasure service will have little value for the commercial vehicle. Here our salesman will have to meet the quizzing of experts; any attempt to sidestep their questions will justly be frowned upon; not only will the purchaser be unfavorably impressed, but the engineering department will develop a tall-sized grouch if an attempt be made to pester it with the real work of the sales department—and pestered it will be if the commercial vehicle business ever becomes brisk. Then technical men will be detached from the engineering force to join the sales department. They will follow the performance of the vehicle *after* it is sold; they will come into close contact with the snags and difficulties of the service; they will analyze the successes and failures of certain features of their own as well as of other products. When, therefore, a new model is developed in the draughting room they will be called upon to go over the details, exactly as is done in other engineering works, with the result that the new model will have advantages that are absent in the machine not produced under such conditions.

FARM HORSE GIVING WAY TO ITS RIVAL, THE AUTO

WASHINGTON, D. C., Feb. 17.—According to investigations made by G. K. Holmes, chief of the Division of Foreign Markets of the Department of Agriculture, the automobile has been responsible for the displacement of but 60,000 horses in this country up to the present time, and farm horses have never been in such great demand as at the present moment. In fact, the demand for horses for farm and other business uses has become stronger and stronger during the past two or three years, the farm horses alone in use on January 1, 1908, numbering no less than 19,992,000 in round numbers. The department figures that 60,000 horses in stock on farms could have replaced the same number that have given way to the automobile, while it is calculated that the 500,000 horses which electricity displaced in urban street-car service, could have been replaced by 850,000 horses in stock assuming its growth to present proportions with horses.

LETTERS INTERESTING AND INSTRUCTIVE

ALCOHOL OR KEROSENE IN EMERGENCIES.

Editor THE AUTOMOBILE:

[1,168.]—Kindly let me know, through "Letters Interesting and Instructive," how a gasoline car could be run on alcohol or coal oil. Last Sunday I was stuck for want of gasoline, but could have had coal oil or alcohol, but did not know how to use it.

Philadelphia, Pa. H. R. McKAY.

Either kerosene or alcohol may be used in a gasoline motor in an emergency with but little difficulty. This is the case particularly when the lack of gasoline is discovered before the motor has been allowed to get cold. The emergency fuel may be poured into the tank and the motor, either kept running continuously or started with but little trouble. It is advisable to cover part of the radiator or cut down the efficiency of the cooling system in some equally simple manner in order to raise the temperature of the jacket water and maintain it just short of the boiling point. Otherwise there will be a noticeable lack of power with either alcohol or kerosene. For starting from cold, it will doubtless be found necessary to warm the carbureter by swathing it in rags dipped in boiling water, as neither of the fuels in question will vaporize at ordinary temperatures. It will also be found necessary to increase the amount of lubricant employed to run the same distance, owing to the fact of the introduction of a greater or less quantity of liquid fuel into the cylinder, and the consequent cutting of the film of lubricant on the cylinder walls. Considerably more fuel will be necessary with either of these fuels than with gasoline, and even under the best conditions obtainable with a car on the road it will scarcely be found possible to get as much power as with gasoline; but by heating the carbureter and raising the running temperature considerably, it should always be possible to get home.

DIRECTIONS FOR ADJUSTING A CARBURETER.

Editor THE AUTOMOBILE:

[1,169.]—Will you kindly inform me through the columns of "The Automobile" if my system of adjusting a carbureter that has been completely taken apart would be best, and if not, please advise me: To adjust carbureter, close throttle and retard spark, then adjust gasoline needle till engine regains its highest speed; after this, open throttle with spark still retarded and adjust air valve till the best result from the open throttle is obtained.

Worcester, N. Y. OMER SLOAT.

We believe it is the consensus of opinion of both carbureter makers and repairmen that the correct method of making a carbureter adjustment of this kind is to regulate the gasoline supply until the motor can be started on it. Then with the motor running, the gasoline is decreased until the motor reaches the lowest speed at which it will run regularly and without missing, the occurrence of the spark being retarded to suit the speed of the motor. The throttle should then be opened and the spark advanced with it, and if the motor fails to run as it should at the higher speeds, an attempt should be made to remedy matters by altering the auxiliary air adjustment so as to allow more or less additional air as the case seems to demand. This method of adjusting is followed on the theory that with a sufficient supply of fuel at low speeds the increased suction of the motor will take care of this essential as the speed increases, and a good mixture will be formed if the air adjustment is correctly made. Probably many autoists have adopted satisfactory methods of their own by doing this, as a result of experience, and their way of accomplishing this most important of adjustments would doubtless be of considerable interest to the rest of their fellows not so fortunately situated, so that we should like to hear from those who have methods of their own, which will be published in this department.

EXAMINING SECOND-HAND CAR CRITICALLY.

Editor THE AUTOMOBILE:

[1,170.]—Will you give in an early issue of "The Automobile" instructions as to how to examine a second-hand automobile (besides a demonstration), which will enable one of moderate mechanical ability to detect weak points likely to soon need repair and determine truly the general condition of the car, and especially of the mechanism and tires; in other words, guiding advice to prospective purchasers of second-hand cars.

Does an air-cooled motor consume more lubricating oil than same size of water-cooled motor, having the same number of cylinders? If so, is there much difference, and to what cause is it due? A. C.

Pleasant Lake, Ind.

In the purchase of a car that has seen service there are a great many things to be taken into consideration, so that they can only be dwelt upon briefly here. Have the engine run at all speeds while standing and note carefully whether it gives audible sounds of derangement, such as knocking, missing and other miscellaneous sounds of loose or badly worn moving parts, or visible signs of distress such as the escape of smoke from exhaust manifold, water, oil, or gasoline leaks. Many of these may proceed from causes small in themselves, but requiring considerable work to overhaul and make good when taken in the aggregate. A bad knock may only mean lack of adjustment of the bearings, but it is more apt to indicate the necessity of their renewal. A water leak may come from the radiator and prove expensive to repair, and escaping smoke may really come from a cracked valve-port instead of the manifold. The former would be a serious defect, while the latter would only require new asbestos gaskets to remedy. Gasoline and oil leaks may likewise be either trivial or serious according to their cause. The outside appearance of the car should be noted, as this will give some indication of the manner in which its owner has treated it. If it should show the marks of numerous collisions on fenders, hubs and other protruding parts, it is safe to say that it has been recklessly driven and probably not any better taken care of.

After satisfying yourself that there is nothing seriously wrong about the motor or any of its accessories, examine the transmission, step by step. First, the clutch. If this be of the leather-faced conical type, the need for a new facing is not a serious defect, but as many early clutches of this type were poorly designed, it should be looked into thoroughly. Note whether the leather is burned, whether excessive spring pressure is required to seat the clutch, and whether the clutch shaft appears to be in any way sprung, or out of alignment. Open the gear-box and flush the pinions a bit with gasoline so as to be able to observe the condition of their teeth. Mangled and battered gears are a sign of poor material, poor driving, or both, and as they are expensive to replace, a car on which this defect is prominent would not be an extra good investment. Both the clutch and gear-set in the average car are quite accessible, and no owner who honestly believes his car to be in good condition can possibly object to a thorough examination of these vital parts. See that the shafts are absolutely true, and to do this run the motor with the gear-box open. If the shafts wabble, they are not in line, and their bearings should be examined. Stop the motor and try shifting the gears to each position; the cause of any difficulty in doing this should be ascertained before going further.

It will be found a good idea to take a pad and pencil, and as each defect is found, make a note of it, totalling them at the conclusion of the examination and estimating the cost of making them good. The owner will, of course, belittle them in every instance, and assure the prospective purchaser that

they can be made good for a mere nothing—"a few dollars will do the whole thing;" but if the purchaser be not able to estimate the repairs himself, he should take not alone the advice of a repairman, but get a close estimate of what the latter will do the work for. It is well to call in a disinterested repairman. Coming back to the examination, see that the gear-set housing does not leak oil, and that the aluminum is not cracked around the bearing seats. Proceeding further, see that the universals on a shaft-driven car are not badly worn. Look to the chains on a car of that type, also the sprockets. Jack up the rear axle, open the differential case—there is usually a hand-hole plate easily removable, so do not be deterred from examining such parts through the disinclination of the seller to show them "on account of the trouble." Have some one turn the rear wheels for you while you watch the differential pinions and the main bevel and driving bevel pinions for wear or broken teeth. With both rear wheels jacked up, run the motor and try shifting the gears to every speed, including the reverse. Note the running of the differential, and then stand off to the rear and note how the rear wheels run. If they wabble at all, and weakness of the rear-axle driving unit has been a characteristic of many low-priced cars during the past few years, it is an indication that the driving shafts of the rear-axle are sprung, the differential is out of line or something of that nature—in any event, an expensive item to make good.

Examine the axles closely for dents or other indications of the effects of a collision, and look closely into the manner in which the springs have stood up. If they have been overburdened and have taken an excessive permanent set, they are apt to break at any time. Comparing their appearance with those of a new car is probably the easiest method for a layman to detect anything wrong with their appearance. Look into the steering closely—some looseness is inevitable, but there should not be an amount of play that would render it dangerous as being apt to give way at any moment. Also examine all steering gear connections minutely, particularly the drag-link. Take hold of the wheels and try to shake them laterally to detect looseness on their bearings. No matter how close this examination has been, insist upon having a long demonstration. Many cars can be made to run around the block or for a mile or two, without revealing anything wrong, but they are apt to prove their real condition on a good day's run. It will be found a good investment to offer to pay for the fuel and other expenses of making such a demonstration, whether the sale be consummated or not. Any owner will realize the justice of such a proposal.

An air-cooled motor consumes more lubricating oil than a water-cooled type, due to the higher average temperature of operation. The difference depends entirely upon the make of the two motors. The accusation has been made against some air-cooled motors that they are "oil-cooled," but ordinarily the difference in this respect is not great enough to be put down as a disadvantage.

LIQUID GASOLINE IN THE MANIFOLD.

Editor THE AUTOMOBILE:

[1,171.]—Will you kindly explain, in the columns of your paper, why liquid gasoline can be seen swimming down the pipe that leads from the carbureter to the intake pipe on my four-cylinder, 30-horsepower car, fitted with a Schebler carbureter? Is there any way of adjusting the float on said carbureter? If so, where?

Colon, Neb. A SUBSCRIBER.

It is evident that either the float is too high or the opening of the nozzle is too great for the requirements of the motor, or it may be that both troubles are present. Theoretically, liquid gasoline should never get beyond the carbureter and into the intake manifold, though under certain conditions more or less either finds its way there or becomes transformed into that form by condensation, but any such amount of liquid that would justify the term "swimming" would seem to point to very defective adjustment. If you will write the makers of the Schebler carbureter they will forward you a comprehensive book of instructions on its use and adjustment, which will serve your purpose much better than the necessarily limited amount of space that could be devoted to it here. Such a book takes up each part of the carbureter, describing it and its functions in detail, and exactly the manner of making all the adjustments.

TO THE AID OF TWO INQUIRERS.

Editor THE AUTOMOBILE:

[1,172.]—In your publication of December 30, I notice a communication, No. 1,136, signed "A Subscriber, Oakland, Cal.," who complains of trouble which he had relative to his machine, which was a four-cylinder engine with automatic intake valves, knocking when under load.

I have had some difficulty with the same style of machine, using a Schebler carbureter, and, I imagine from his description, the same engine.

After exhausting every method to locate the cause of trouble, I have succeeded in obviating the entire difficulty by changing the carbureter. I believe the Schebler carbureter is a remarkably good one, but possibly not adapted to some styles of engines as well as a larger carbureter, and if you will take the trouble to forward to the writer of the inquiry this communication I shall be pleased to advise him the methods which I followed in locating the trouble and correcting it.

I would also say in reply to inquiry No. 1,142, of February 6, by J. H. Townsend, of Danbury, Conn., I have advised him that the Buckmobile was manufactured in Utica, N. Y., and the concern manufacturing it has been out of business for some time, but I am also advised that parts may be purchased from some person in Syracuse, N. Y., the exact location of which I shall be pleased to ascertain should other inquiries follow. J. T. DURHAM.

Oneida, N. Y.

Editor THE AUTOMOBILE:

[1,173.]—I notice in your issue of February 6 an inquiry, No. 1,142, signed J. Townsend, Danbury, Conn., who wants to know who built the Buckmobile. You answered his inquiry by saying that you didn't know their address. The Buckmobile was built in Utica, N. Y., by the Black Diamond Automobile Company, and the factory was located on Upper Genesee street. The company is now out of business, but the people interested are Mr. Brower, William Birdsall, now with the Mora Motor Car Company, and A. J. Seaton. Mr. Seaton and Mr. Brower are still in Utica.

IMPERIAL MOTOR CAR COMPANY,

Williamsport, Pa. Fred P. Brand, Vice-Pres. and Gen. Mgr.

The following have also come to the rescue of Mr. Townsend on the Buckmobile question, but as their letters contain the same information in greater or less detail, it is unnecessary to publish them here in full. They are:

Philip A. Clum, Clum & Atkinson, Rochester, N. Y.

C. B. Hine, Curtis & Hine, Colorado Springs, Col.

D. C. Austin, Newark, N. J.

CONCERNING THE TIMING OF A MAGNETO.

Editor THE AUTOMOBILE:

[1,174.]—Kindly advise me if possible, as to the dates of the various publications of your paper which have technical articles bearing upon the action and construction of magnetos. I find that most publications on ignition, while going thoroughly into the question of volts and amperes and Ohm's Law, jump at once to induced and self-induced currents, without proper explanation.

Kindly advise me also on the following points:

1. Why cannot a low-tension magneto giving an output of 6 volts at 1,500 r.p.m. with the aid of an induction coil and trembler, be used on a jump spark? In your issue of December 19, 1907, under the heading, "Why an L. T. Magneto Must Be Timed" (No. 1,025), you say that the magneto generates an alternating current, and must be properly timed by gearing. How does such a magneto differ from an L. T. Hendricks magneto, giving 6 volts at 1,500 r.p.m., with the aid of a primary spark coil, that I am using on a make and break circuit for a three-horsepower, two-cycle engine, the drive being by friction wheel from engine flywheel, and which is certainly not timed? JAMES W. MYER.

New York City.

In view of what you state in the first part of your inquiry, few of the articles published on the subject of magnetos in

THE AUTOMOBILE would be of any great assistance to you, and we should recommend you to invest in an elementary work on electricity, as you will realize it is out of the question to begin with the rudiments every time it is necessary to explain something of this kind.

Because, at this speed, there would be such an appreciable length of time between the current impulses that it would be quite possible for them to occur between the intervals of spark timing, instead of when wanted, with a consequent failure of ignition. It must be borne in mind that the type of magneto commonly employed for automobile ignition has a simple "H"-shaped armature and a two-pole field, so that it only generates two impulses per revolution, from which it will be evident that it would be necessary to run it at a very much higher rate of speed than 1,500 r. p. m. in order to insure having sufficient current at the proper moment to ignite a high-speed engine. In fact, the number of cycles, or alternations of the current, would have to be almost as high as that used for incandescent lighting, *i.e.*, 65 to 125 per second, so as to obviate the possibility of a dead point of the armature revolution corresponding with the firing point of one of the cylinders. The need for doing this is eliminated by timing the magneto to the engine, thus utilizing its two comparatively widely separated impulses to the best effect.

Such a magneto differs from what you term a magneto altogether, in that the machine you have is really not a magneto at all. It is simply a small direct-current generator with a permanent magnetic field instead of the usual electromagnetic field employed on dynamos. It does not generate an alternating current, but a direct current, and there is no reason why it cannot be used with an induction coil and spark plugs for jump spark work, except that it will be necessary to closely regulate the generator speed on an auto.

QUESTIONS CONCERNING POWER AND TIRES.

Editor THE AUTOMOBILE:

[1,175.]—Will you kindly answer the two following questions through "Letters Interesting and Instructive":

1. I have a Winton Model K and would like to know if I could get more power by mixing kerosene with gasoline, and if so, what is the proportion?

2. Can you tell me how much of a load a 34 by 4 tire should carry? N. F. R.

1. It might be possible to obtain greater power by using a mixture of kerosene and gasoline, rather than the latter alone, but we doubt if this would be the case where such a mixture is employed in a motor designed primarily to be run on gasoline alone and fitted particularly for that fuel. Kerosene has slightly more heating value than gasoline, but a higher initial compression and a longer stroke are required to fully take advantage of it. You might reduce your fuel bill somewhat by using a mixture of half kerosene and half gasoline, or one-quarter of the first and three-quarters of the latter, but in any case we doubt very much if there would be any appreciable difference in the amount of power developed.

2. The permissible load of 34 by 4-inch tire is 700 pounds per wheel, as agreed upon by the tire manufacturers two years ago. It is needless to add that this is far more often exceeded in practice than otherwise.

WHAT CAUSES THIS MOTOR TO MISS?

Editor THE AUTOMOBILE:

[1,176.]—Will you kindly answer the following questions: Why does my motor miss explosions after starting in the morning until it has run about ten minutes? It is a 50-horsepower four-cylinder engine. Would an induction coil increase the power of the motor with low-tension, make and break ignition? L. A. H.

Jacksonville, Fla.

Some motors will frequently do this until they have run long enough to warm up. It is probably caused by the fact that either the carbureter is not adjusted to furnish a readily explosive mixture until it becomes warm, or it is incapable of working well when cold. An induction coil could not be employed in connection with a low-tension system. You may have reference to a common "spark" coil, which is a single winding on a heavy iron core. This will increase the size and intensity of the spark made by a low-tension igniter and might improve matters where the current now obtainable is weak.

BUSINESS METHOD OF FIGURING COSTS.

Editor THE AUTOMOBILE:

[1,177.]—Your "Letters Interesting and Instructive" often chronicle low costs per mile for the operation of the automobile, and it has often occurred to the writer that the reading public may be misled by the figures presented. There is no doubt but what the actual fuel expense and repair costs of upkeep are in some instances very mild, and to those who are fortunate enough to be numbered with the lucky squad the figures tell a very gratifying story.

There may be many others who will agree with the writer in the following schedule of expense, and it would be pleasing to see opinions quoted and compared, at least to the writer, and possibly to other readers of your valuable journal.

Would not a very equitable plan in figuring the cost of keeping an auto include properly the following expenses:

First.—Interest upon the original investment for the full period of ownership, first cost to include price of all accessories.

Second.—Actual depreciation of the machine, never correctly determined until the machine is sold.

Third.—Stable hire, or garage rent, by the month or other period, for even those of us who own our own stables should pay ourselves rent.

Fourth.—Fire insurance. Is it safe to be without it?

Fifth.—Accident insurance. Apply the same question as above.

Sixth.—Necessary replacements, for no car will run indefinitely without care and renewed parts occasionally.

Seventh.—Shop charges for repairs not solvable to the ordinary mechanic.

And lastly—The, often estimated, quantity of fuel and lubricant used. Does not the last item become really a minor consideration in the keeping of a machine, and would a better standard to go by be the cost per year to run a machine, rather than the cost per mile, for divide all the costs by a low mileage and the result will astonish a driver, while a large mileage would be affected by practically the last item only, other numbers being in the line of fixed charges.

No account has been taken of costs of entertainment, as that should be returned in kind some day, and the writer assumes that an owner who cares to figure the expense drives his own car.

Lawrence, Mass. A CONSTANT READER.

PAINTING ALUMINUM FOOTBOARDS.

Editor THE AUTOMOBILE:

[1,178.]—I have worked out a kink in the care of a car which I think may prove of interest to fellow automobile users, so I am sending it for publication in "Letters Interesting and Instructive," if you consider it merits a place there. The use of cast aluminum with a roughened surface has become so common for footboards, toeboards, running boards, etc., as to make its maintenance in bright condition somewhat of a problem for the owner who already has enough of trouble in the way of brass to be polished, paint to be washed, etc. When new, the aluminum looks fine, with a satiny finish that appeals to all, but once it has been splashed over a little with oil and then exposed to dust and muddy feet, it is practically impossible to clean it up again to look like new, its roughened and somewhat absorbent surface clinging to the dirt past the ability of any ordinary ingenuity to remove it. Confronted with this condition, I tried the experiment of painting the surfaces with a solid coat of good coach varnish, of a color that harmonized with that of the rest of the car. Then, with a sheet of sandpaper wrapped about a block of wood, I took off all the paint from the smooth edges and high points, leaving these exposed and easily reached portions in bright aluminum, while the less-exposed portions remained coated with the easily washed paint. In the matter of appearance, I consider that the pattern worked out by the alternation of the bright aluminum points and edges with the darker painted areas will appeal quite as generally as the unrelieved aluminum surface. LEO JOELSON, M.D.

Houston, Tex.

ABOUT HIGH-TENSION IGNITION VOLTAGE.

Editor THE AUTOMOBILE:

[1,179.]—In question No. 1,029, Mr. Ellis wishes to know at what voltage the spark is given in the cylinder. The question seems to be of considerable interest to many. I have heard as many different

answers as questions, and the answers run from 10,000 to 100,000 volts, the last from your magazine. As we cannot get something from nothing, let us look to our supply of electricity for this excessive voltage. If we had 10 amperes of electricity at 1 volt, we could transform it with a suitable induction coil to one ampere at 10 volts or 1-2 ampere at 20 volts. What we gain in voltage or pressure of current we lose in amperage or quality. Now we know that we can take 6 cells that show 4 amperes each, and by connecting them in series we get approximately 9 volts, but this gives a total amperage for the 6 cells of 4 amperes. Now, if we should transform these 4 amperes to 100,000 volts, this would give us but 1-25,000 of an ampere to make a continued spark for a minute or so, as these six cells will do in actual operation.

As an ampere represents a volume of a current produced by a pressure of one volt, flowing through a conductor having a resistance of one ohm,the above current could only pass through a wire having the resistance of 1-25,000 of an ohm. There is only one way to find the truth of this matter, and that is to get a coil maker to tell us what are the proportions in his windings in the primary and secondary coils, and then we could figure it out ourselves.

I want to say a word in regard to Mr. Fay's assertion that a carbureter should not have a needle point in the spray nozzle. For the last three years I have never adjusted my carbureter, for the simple reason that I couldn't if I wanted to, as there is no needle point in the nozzle, and if all parts of my automobile were as perfect as this one part, all would go well indeed. I think a carbureter with a needle point would be on par with a man buying boots too large and then pulling on three or four pairs of stockings to make them fit.

FRED C. HATHAWAY.

Portland, Mich.

TIMING AND SCAVENGING AT HIGH SPEEDS.

Editor THE AUTOMOBILE:

[1,180.]—Referring to the final paragraph of C. T. Bates' letter, in your issue of February 6, I venture to say that if Mr. Bates will read again what I said about spark timing at high speeds, and read it slowly, he will fail to find any intimation that complete ignition of the mixture can be obtained at the instant which would give maximum effect, when running at very high speeds. What I said was that timing the spark is no more difficult at high than at low speeds, and I was careful to explain that beyond a certain speed it is not practicable to advance the timing far enough to secure combustion at the most efficient moment. The most efficient timing is not practicable simply because it entails beginning combustion so far ahead of the dead center position as to produce dangerous back pressures, and not because of any difficulty in setting the timer at the proper point, as Mr. Fay's statement clearly intimated.

In my letter, on page 181 of your issue of February 6, a line is omitted and the effect of a statement thereby impaired. After the fifth line from the top of the second column should be inserted the line:

"but this critical point usually occurs near or beyond the maximum speed."

CECIL P. POOLE.

New York City.

HELP ON THE LUBRICATION QUESTION.

Editor THE AUTOMOBILE:

[1,181.]—I have obtained a great deal of useful and helpful information in your "Letters Interesting and Instructive," and as one good turn deserves another, I will give my experience with a Ford Model N runabout. Formerly I had lots of trouble with my spark plugs sooting up. I frequently cleaned one or more plugs two or three times a day. I don't do that any more—do not have to—have not looked at a plug for the past three months. Let me explain: I now pour kerosene, lubricating oil, either or both, in any quantities from a pint to a couple of quarts of cylinder oil, right into the crankcase, but when I have done that I also pour a cupful—4 to 6 ounces—of "radium decarbonizer" right into the crankcase, start up the engine, and away I go, with never a miss from foul plugs. My muffler I find to be clean and the engine with splendid compression and increased power. This is in no way an "ad" for anybody. I pay for what I get, and I only write these lines for the benefit of others, who, like myself, are afraid to pour oil freely into the case. Now I do as Ford says, pour in plenty oil, and then some more, and then lots of oil; no matter how she smokes, the plugs will stay clean.

J. L. WILLIAMSON, M.D.

Milwaukee, Wis.

INFORMATION WANTED ABOUT "MAGNALIUM."

Editor THE AUTOMOBILE:

[1,182.]—On several occasions recently I have come across references in different trade papers to an alloy termed "magnalium." It is, as I understand, an alloy of aluminum and magnesium, and is, because of the specific gravity of the second component, even lighter than aluminum, while it is claimed to possess altogether superior physical properties. I do not know that it is extensively applied to any purpose, except for making beams for fine analytical balances, and it is apparently so new that I am able to secure only the most meager information concerning it. For this reason I am writing to learn what I can about its physical properties, etc. I will greatly appreciate it if you can tell me by whom and when this alloy was first used, where it can be secured and the cost, its specific gravity, its tensile strength, character of fracture, melting point, capacity for forming by founding, hammering, and machining, and its appearance and resistance to corrosion. I particularly wish to know about the latter point, because pure magnesium is well known to oxidize quickly to magnesia if exposed to moist air.

Madera, Cal. GEORGE WAINWRIGHT.

HELPING OUT TWO OTHER INQUIRERS.

Editor THE AUTOMOBILE:

[1,183.]—In answer to Nos. 1,136 and 1,137 of your "Letters Interesting and Instructive," let me give you my answers.

Inquiry No. 1,136: I had the same trouble on my four-cycle engine, and after a great deal of trouble, looking and worrying, I found that the connecting rod was loose at the wrist; i.e., in the piston end of the rod. The questioner will very probably find the same cause for the "knock."

Inquiry No. 1,137: I will say he can use his engine as a brake O. K. with the throttle closed and ignition off. If the descent is too steep, change to a lower gear. If the inquirer will get on a long hill and then cut out the ignition, he can experiment for himself with the throttle; but he will find it as the editor suggests; i.e., keep the throttle closed and save fuel as well as get more braking power out of the engine.

SCHUYLER G. FOSTER.

Allegan, Mich.

NECESSARY TO WARM THE CARBURETER.

Editor THE AUTOMOBILE:

[1,184.]—Regarding letter No. 1,135 in "Letters Interesting and Instructive," you say there is no need of heating the air or carbureter. There is, and the warmer the air and the warmer the carbureter is kept, the more economical and efficient the engine will be. Why are all the leading carbureter companies water-jacketing their carbureters?

Regarding letter No. 1,136. Have had some trouble with a Louis two-cycle engine, but found it was lack of lubricant. Engine would run fine as long as I kept the oil so high in the crankcase as to cause the engine to smoke. It was a water-cooled engine.

C. S. VIALL.

Chicago, Ill.

MORE ABOUT BRAKING WITH THE MOTOR.

Editor THE AUTOMOBILE:

[1,185.]—After reading letter No. 1,137 in your issue of January 30, relative to using motor for braking purposes, it may interest some of your readers to know that a very satisfactory device of this kind can be had in the open market. I have used this device with very gratifying results. It consists of an auxiliary air and ignition cut-out valve located directly under the steering wheel, which when opened admits cold air to the induction pipe ahead of carbureter, and at the same time cuts out the ignition. I have found the saving in one season of fuel, brake bands and batteries amounted to many times the first cost, not to mention the great amount of added comfort and convenience in the handling of the car obtained by the use of the device.

FRANK T. CABLE.

Wollaston, Mass.

ONE WAY OF MAKING DRY CELLS OVER.

Editor THE AUTOMOBILE:

[1,186.]—Where dry batteries retail from 40 to 60 cents, it pays to rejuvenate your old ones. To do so, cut the old zincs off, being careful not to disturb the manganese filling, then wind tightly with two or three layers of blotting paper, then wrap with linen thread to hold in place, then slip a new zinc over, leaving the long joint unsoldered; then wrap this tight with a piece of wire, solder the joints, and take off the wire; then soak it from the top with a strong solution of salammoniac or ammonia chloride and seal, and it has got a new lease of life. This can be done at a trifling expense, and the fillings will stand the operation two or three times.

Redding, Cal. A BATTERY FIEND.

SOME CORRECTIONS FOR LETTER NO. 1150.

Editor THE AUTOMOBILE:

[1,187.]—Referring to letter No. 1,150 in the issue of January 30, I beg to say that I wrote possible "relations," not "solutions," and "Type 1." not "Type 2."

CHARLES J. WILLIAMS.

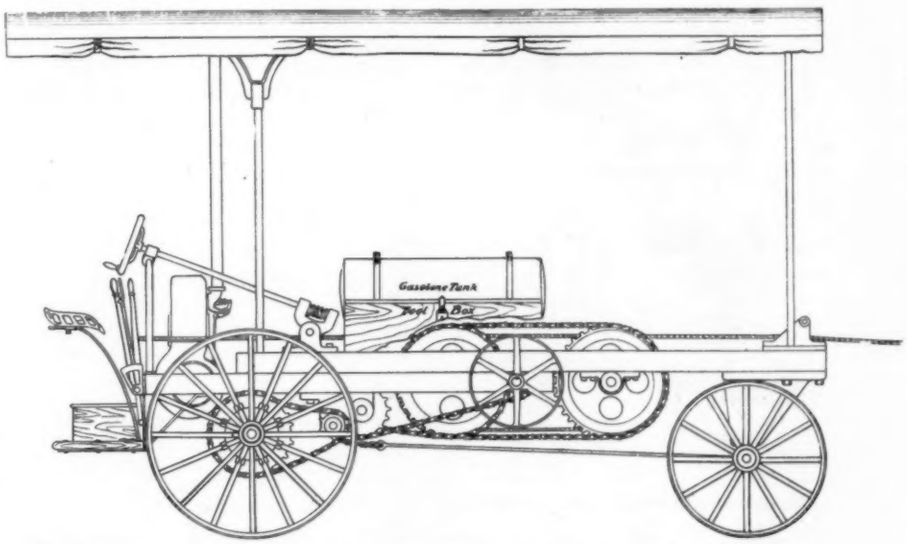
East Acton, Mass.

TO SUPPLANT STEAM ON PRAIRIES.

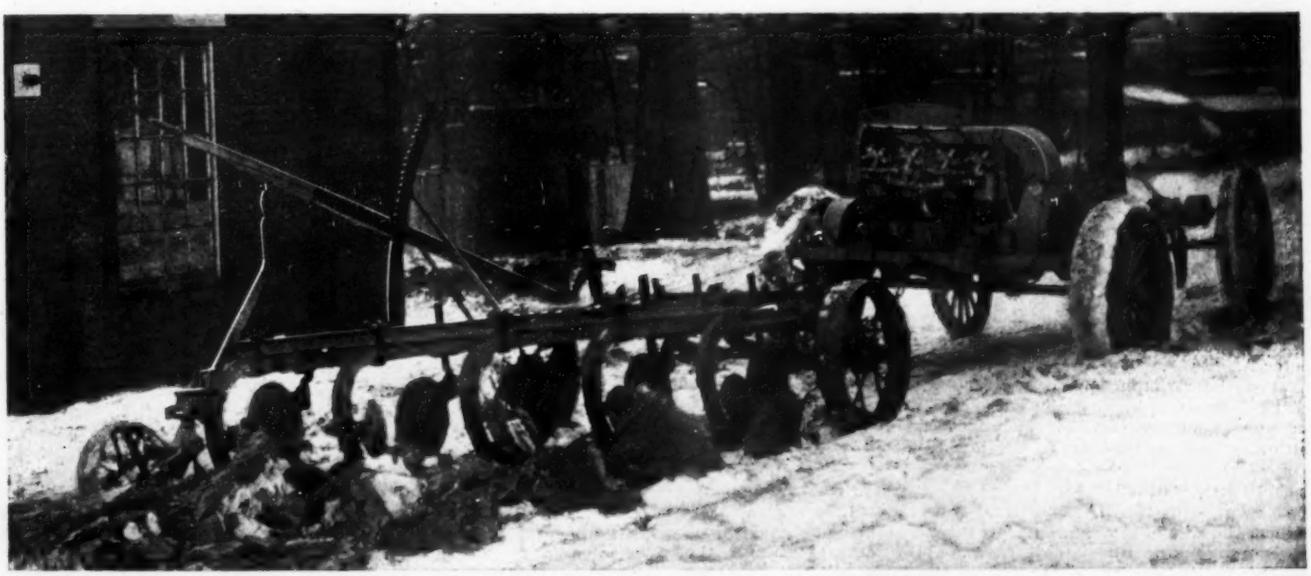
Nothing but the steam traction engine and improved agricultural machinery made the vast farms of the western plains a possibility, but it would seem that the day of the steam tractor is now drawing to a close, and that its place will shortly be taken by the far lighter and more economical gasoline-driven machine. A concern known as the Farmobile Company has devised a special machine to take care of practically all the power needs on these large farms. Its manufacture has been taken up by the Oscar Lear Automobile Company, Springfield, Ohio, and it is probable that the latter firm will build these farm machines in numbers. For plowing and similar work the Farmobile works on a novel principle that insures the efficient utilization of every bit of its power, regardless of the nature of the ground. The machine gets its traction from a 7-16-inch steel cable, stretching the entire length of the field and anchored at one end by means of a pulley block, which rides on a 1-2-inch cable at right angles to the main cable, 200 feet long, and which is anchored to 6-inch posts, set 200 feet apart.

On the machine itself are large drums or capstans, round which the main cable takes six turns, or wraps, and passes out to the rear. These capstans are arranged to be propelled directly by the engine, and when turned in this manner the machine advances along the cable, drawing a load which would require twenty strong horses to haul, and at a speed of 2 1-2 miles an hour. The main cable, riding on the transverse cable at the end of the field, allows of a strip 200 feet wide being worked the entire length of the field without shifting the cable. When such a strip has been completed the end cable is unlooped from the first post and put over a third, and then the machine is in a position to work a second 200-foot trip. Under favorable conditions the machine will plow 12 furrows at a time and will average 35 acres per day of 10 hours. The cable system also provides an ideal method of pulling stumps, lifting very heavy weights, and the like, and with its aid a farm can be worked practically without the use of horses.

It is also designed to be used for traction purposes, and can make a speed of four miles an hour on the road when hauling its maximum load in the shape of a train of wagons. It is also adapted to be used for cultivating, or the engine can be run free and its power utilized, by means of the large belt pulley provided, to run stationary farm machinery, pumps, or for similar purposes. The power plant consists of a Frayer-Miller air-cooled engine mounted transversely across the frame of the machine, both the ignition and throttle being controlled by a centrifugal governor, so that the driver is left free to watch the steering and tend to the plows, his seat being so placed that he has full control over the machine as well as whatever it is hauling. The control of the machine itself is by means of a steering wheel and two levers. Three sizes of the machine are to be built, equipped with 20, 35 and 50 horsepower Frayer-Miller air-cooled motors, respectively. They will weigh in the neighborhood of 3,500 pounds and will sell for approximately $1,500, $2,000 and $2,500. The use of such machines in the western part of the country, with alcohol as a fuel, would provide a great impetus to the further introduction of machinery for farm use, as in such regions the cost of coal, wood and gasoline is practically prohibitive. Since the machine shown by the accompanying photograph, together with its work, was built, the driver's seat has been changed as shown by the line sketch illustrating a Model A Farmobile.



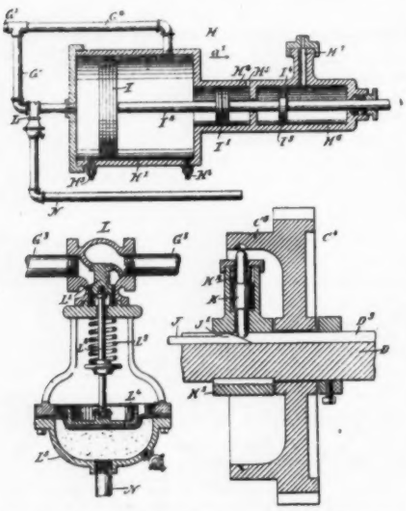
SIDE ELEVATION OF THE FARMOBILE, SHOWING ARRANGEMENT OF DRIVING GEAR.



THE FRAYER-MILLER FARMOBILE PULLING FIVE PLOWS IN FROZEN GROUND NOT BROKEN PREVIOUSLY IN 25 YEARS

NOVEL AUTOMATIC GEAR-SHIFTER.

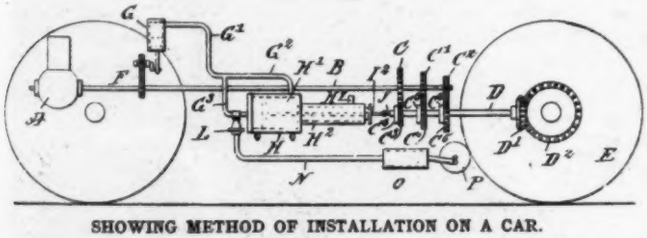
Numerous attempts have been made to solve the problem of lessening the driver's work of gear-shifting, as well as the disadvantages to a great extent, by providing the car with an automatic device to accomplish this end. An ingenious arrangement of this kind has been invented by Thomas Burton Ford, on which a patent has recently been granted. The illustration shows a side elevation of the device as applied to a car, the force employed being compressed air, the action of which is automatically controlled by the speed of the car and of the engine. Two air pumps are provided, one run by the engine and the other by the rear wheel, both being connected with a cylinder and piston, an extension of the piston rod of which carries the shifting element of the gear-set. According as the speed of the motor or that of the rear wheels is greater, the gears are automatically shifted up or down, as the result of the compressed air being admitted to one side of the piston or the other, thus enabling the motor to run at a uniform speed. The action is controlled by a diaphragm, a dash-pot arrangement, H^6 I^3, being provided to prevent sudden operation.



DETAILS OF CYLINDER AND DIAPHRAGM.

The operation of the device, as described by the inventor, is, in part, as follows:

Assume that the vehicle is going up a hill driving through the low speed gears C^3, C^6. When the level is reached, there being less friction to overcome, the wheels turn faster and throw the intermediate gears C', C^4 into operation. On a further forward movement on the level the speed of the traction wheel is raised by the intermediate gears and the air pump O pumps more air against the diaphragm L^4, so that the valve L' is moved nearly to a closed position to shut off the pressure in the outer end of the large bore H' of the cylinder H, so that the preponderance of pressure against the pistons I and I' by way of the branch pipe G^2 causes a movement of the pistons I and I' toward the left, to move the incline J' of the shifter J in engagement with the clutch pin K of the clutch member C^6 of the gear wheel C^3, to connect the latter with the shaft D, and consequently the shaft D is rotated at a high rate of speed from the motor shaft B without increasing the speed of the motor A.



SHOWING METHOD OF INSTALLATION ON A CAR.

When the resistance increases to a certain extent the traction wheels turn slower, the air pressure against the diaphragm L^1 decreases, and the valve L' opens to admit sufficient pressure to the outer end of the bore H' of the cylinder H to throw the intermediate gears C', C^4 into operation. On a further increase in the friction, as in going up a hill, the traction wheels E, in rotating slower, force the air pump O to pump less air in a given time against the diaphragm L^4, so that the valve L' opens wider, and consequently more air passes from the air pump G through the branch pipe G^2 into the outer end of the large bore H', to cause the piston I and with it the piston I' to be shifted in the direction of the arrow a', whereby the incline J' of the shifter J moves out of engagement with the clutch pin K of the gear wheel C^4 and moves into engagement with the clutch pin K of the gear wheel C^5 to connect the latter with the shaft D, so that the latter shaft is now rotated from the motor shaft B by way of the gear wheels C^2, C^5 and the said clutch mechanism. When this takes place, the traction wheels E are driven with more force without change in the normal speed of the motor A.

From the foregoing it will be seen that by the arrangement described the variation of pressure in the outer end of the bore H' of the cylinder H, is controlled solely from the traction wheels E, and consequently the motor A, is free to run at a predetermined speed, and the motor A can thus operate to its fullest advantage at all times.

NOVEL MACHINE FOR TESTING BALL BEARINGS.

In order to be able to accurately determine the frictional resistance of a bearing as well as its ultimate load-carrying capacity, the Hess-Bright Manufacturing Company, Philadelphia, makers of ball bearings, have devised a most interesting machine. While it is equally adapted to test any form of bearing, whether plain, roller or ball, it has been designed primarily for the latter as a means of maintaining the high standard of the Hess-Bright bearings. This machine will measure the frictional resistance of a ball bearing that is radially loaded up to 15,000 pounds and does this with a factor of error of not more than two per cent. It will also measure the friction incident to a thrust load up to 10,500 pounds and here its accuracy is within .05 per cent. Both these stresses may be applied simultaneously in any desired ratio within the limits given and at speeds ranging from 50 to 2,200 r. p. m.

Hess-Bright ball bearing No. 308 is a size much used in automobile hubs, change speed gears and the like, so that the results of tests it has undergone are of interest. It has a bore of 1.57 inches, a diameter of 3.54 inches and has 8 balls 9-16-inch diameter, kept apart by the elastic separators characteristic of the HB-DWF construction. The radial load was started at 800 pounds and increased to 13,200 pounds by increments of 40 pounds, the test occupying 10 hours running time, the speed corresponding to 24 miles per hour for a 32-inch wheel. The radial load was started at the same point and raised to 11,000 pounds in four and a half hours, at which load it was run for seven and a half hours at 325 r. p. m., or the equivalent of 31 miles an hour in a 32-inch wheel hub. Tests showed the total radial freedom to be .00045 and the total axial freedom .007 inch, both being within the limits of a new bearing and thus showing no appreciable wear. In practice the number 308 bearing is not loaded above 1,000 pounds, so the tests showed it to have more than a tenfold factor of safety.

AERIAL YACHTS NOW A COMMERCIAL FEATURE.

PARIS, Feb. 11.—An indication that the airship has already reached an advanced position in the world of commerce and sport is found in some of the catalogues of balloon makers descriptive of 1908 models of aerial yachts for pleasure and touring. Just to take one of these as an example, two 1908 models are described, a large one for military use, fitted with a couple of 70-horsepower engines, and a smaller pleasure yacht, fitted with a 30-horsepower motor and guaranteed to give twenty miles an hour. The standard models are described in detail much as a manufacturer would describe an automobile or a motorboat, but instead of the pleasures of touring on land or water the joy of being able to cruise in the air is set forth in glowing language. The significant thing about it is that firms having won laurels by the construction of successful Government ships should already have adopted fixed types ready to be delivered from stock. The Bayard-Clément firm is said to be receiving orders for dirigibles, and several other large constructors, including Renault, are building aeronautical engines.

AN EXAMPLE IN PROGRESS THAT TELLS ITS OWN STORY

ANYONE who was anxious to invest in a hansom cab—not of the automobile variety, but of the sort to which a four-legged hay motor is usually attached—should have taken up his stand at Broadway and Forty-second street, New York City, just before 2 A. M. Sunday morning, for they were going cheap. "Not a dollar to-night and no chance," said Dan Buckley, as he watched the crowds leaving the Knickerbocker Hotel, hour after hour, without so much as looking at the line of hansoms, now relegated to the background by the new "taxis." Dan is the dean of the nighthawks, those deep-sea cabmen who spurn anything less than a two-dollar bill, no matter how short the ride, and he has cruised throughout the Tenderloin in fair weather and foul for the past twenty-two years. "The days of the nighthawk are over and we might as well give in," he continued. "I'm going to sell my old cab and get out." Thereupon was the hansom buyer's opportunity.

Dan has had six cabs in his long career and they cost as high as $1,400 apiece, but the impromptu auction held then and there at the curb failed to bring more than $10 for his last cruiser. "It's all up with us guys. We're all in and down and out. Here goes my old wagon for what you'll pay for it," and with this impromptu speech the bidding was on, the opener being a quarter. The jumps were not much bigger and, there being no offers over $10, the towering two-wheeler was knocked down to Eddie Poole at that figure. The motive power and its tie ropes were thereupon seized by Charles Crowl as the equivalent of a ten-dollar payment on his stable bill of $25. Then Bill Lynch, another old-timer, fell in line, followed immediately afterward by George Schaefer. Being of more recent vintage, their craft brought $25 and $20 respectively, sans power-plant.

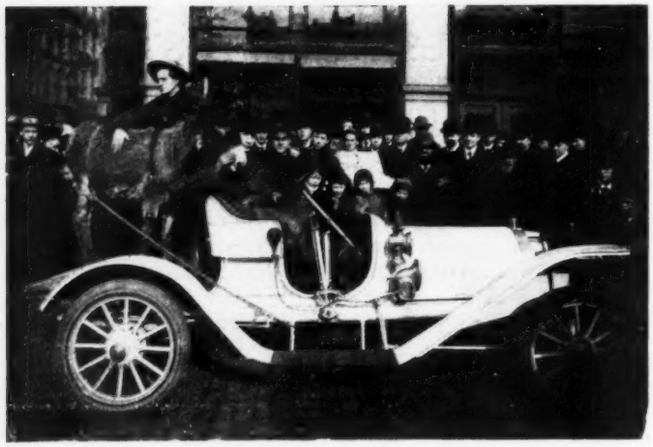
In the heyday of his calling, it was nothing unusual for the nighthawk to average $20 a night, but of late it has been difficult to make that much in a week, and stable charges are higher than ever. The coming of the taxicab has been his undoing, and New York's unsavory institution that has so often been good to the night reporter for a column or more will soon be relegated to the limbo that holds the horse car and the ancient Fifth avenue stage.

No evolution ever proceeded more rapidly and no change was ever made with more silent resignation. The horse driver might have temporarily saved the situation by adopting the taximeter instrument to his vehicle, but his pride would not allow him to climb down from the autocratic position he had held for years, and after a few brief months of struggle with hard times, considerably shortened by reason of a general depression, he has had to get off the box and seek new fields of activity.

In hardly a single instance has the horse driver been able to profit by the good times brought to his trade by the arrival of the taxicab. Under the new system more people travel in cabs than was the case under the old conditions, for, being assured in advance of quick service and honest treatment, there is lesser need to always patronize surface cars and subway. But the young men who knew, or thought they knew, something of automobiles rushed in first and, without any waiting, earned sums that would have satisfied the most rapacious old-time cabby, and made it without robbing the public.

PICTURESQUE SLEEPY HOLLOW CEMETERY WHERE WASHINGTON IRVING IS BURIED. THE CHURCH WAS BUILT IN 1699.

The old graveyard and church figures prominently in Irving's "Legend of Sleepy Hollow." The photograph was taken on the recent run of the Maja car from New York to Poughkeepsie and return in a snowstorm, to see how the vanadium steel springs of the car would withstand the hard roads and rough going. The trip was satisfactory, and Manager E. B. Gallaher also discovered that during the run upwards of 21 miles had been covered for each gallon of fuel used.



GOOD ROADS APOSTLE THATCHER SPEAKING FROM PREMIER.

A GOOD ROADS ADVOCATE AND HIS MASCOT.

Charles W. Thatcher, in a prairie schooner drawn by two small Spanish mules, has crossed the American continent and is now on his way from the Great Lakes to the Gulf, making speeches as he journeys, endeavoring to arouse national enthusiasm so that Federal assistance will be given for the construction of national highways. While in Louisville, Ky., Mr. Thatcher was the guest of the Louisville Automobile Club, and the photograph shows him addressing a street audience from the rear of a Premier Roadster. He utilizes one of the Spanish mules, "Burro," whom he calls his "Good Roads Mascot," as a pulpit from which to expound his good roads gospel.

SALES MANAGER KIRKPATRICK ON THE WEST.

CLEVELAND, O., Feb. 17.—W. H. Kirkpatrick, sales manager for the Peerless Motor Car Company, has returned from a trip West. Mr. Kirkpatrick says that the people in the West are making money fast, and they are willing to spend it in the best. He says the six-cylinder car is meeting with a very favorable reception throughout the western country. W. D. Marlow, agent for the Peerless at Colorado Springs, was a visitor at the Peerless factory last week, and turned in orders for five six-cylinder cars for early delivery, in addition to an order for stock cars. H. B. Clarkson, of Kansas City, was another visitor at the Peerless factory. He looked after the Peerless interests at the recent Kansas City show.

ORIENTAL DIPLOMATS ENJOYING A RIDE IN THE WINTON.

Both Gen. Morteza Kahn, Persian Minister to the United States, and Chekib Bey, the Turkish Minister, are enthusiastic autoists. The former is at the wheel of the "Six-Teen-Six" Winton, and the latter occupies the seat beside him. The photograph was taken in the suburbs of Washington.

ROADS IMPROVING AT TOLEDO FACTORY.

TOLEDO, O., Feb. 17.—"Good roads" is a subject of such absorbing interest in all parts of our country that any information leading to the betterment of our highways is appreciated. Here is a method for road improvement which has been tried out at the Pope-Toledo factory with good results and it is an extremely simple one. On the outside of the factory buildings is a circular speedway, while between the buildings are driveways. These roads are subjected to very severe use from testing cars constantly passing over them, going out and returning to the factory, generally at great speed; heavy traffic of large trucks, heavily loaded touring cars, etc. Naturally these drives and speedways were dust nuisances, to say nothing of the constant repair work to keep the roadbeds in condition. Much experimenting has been done, and the Pope-Toledo people say they have finally hit upon a road treatment which gives excellent results and is very economical. The factory has its own steel treating furnaces, some oil heated. The sediment from the oil used in the heaters, which is crude oil, and with an ordinary sprinkling-can, such as found around any flower garden, is sprinkled over the surface of the roads. Three treatments a season, it is said, makes a roadbed waterproof.

DESIGNER BYRON CARTER IN THE CARTERCAR.

The Cartercar is one of the leading exponents of the friction transmission type of automobiles, and the 1908 model in the photo shows an attractive design.

AUTOS USED IN MICHIGAN TO "BREAK" TRACKS.

"I have seen automobiles used for many different purposes," said A. L. Kull, vice-president of the Dragon Motor Company, "but, to me, the funniest use I ever saw I ran across in Michigan. There had been a heavy fall of light, dry snow the night before, and it did not pack very well. Our agent took out one of his cars and drove over about five miles of road with two large kettles dragging behind. These kettles were filled with bricks and stones, and as they were drawn along they left two hard-packed tracks, just right for the teams. It seems that these kettle tracks are rather an old device with the farmers and in Winter they use this method of breaking roads through the snow.

"The use of automobiles for breaking snow roads seems to become more general each year. The driver is able to make a straighter track than the old-fashioned team of oxen, which formerly had the field to themselves. In the lumber woods the large contractors use automobiles to visit their different camps, which generally are far back in the woods. I noticed the care which these lumbermen take in building their snow roads, and they are almost perfect for autoing, being hard packed. At night they are sprinkled, and by morning they are smooth, almost level, ice roads.

THE AUTOMOBILE CALENDAR.

AMERICAN.

Shows and Meetings.

Feb. 21-29.....—Newark, N. J., Electric Park Auditorium, New Jersey Automobile Trade Association and New Jersey Automobile and Motor Club.
Feb. 24-29.....—Portland, Me., Annual Automobile Show. F. M. Prescott, manager.
Mar. 7-14.....—Boston, Mechanics' Building and Horticultural Hall, Boston Automobile Dealers' Association. Chester I. Campbell, manager, 5 Park Square.
Mar. 11.....—Boston, Bay State Auto Association Clubhouse, First Quarterly Meeting, Society of Automobile Engineers.
Mar. 9-14.....—Buffalo, Convention Hall, Sixth Annual Automobile Show, Automobile Club of Buffalo. Dai H. Lewis, manager.
Mar. 16-21.....—Indianapolis, Ind., Annual Show, Automobile Dealers' Association.
Mar. 18-21.....—Rochester, N. Y., New Convention Hall, First Annual Show, Automobile Dealers' Association and Rochester Automobile Club. Bert Van Tuyle, manager.
Mar. 21-28.....—Toronto, Canada, St. Lawrence Arena, Automobile Show. R. M. Jaffray, manager.
Apr. 5-12.....—Montreal, Canada, Arena, Third Annual Automobile and Sportsman's Show. R. M. Jaffray, Mgr.
April 6-8.....—Denver, Mammoth Rink, Annual Automobile Show. G. A. Wahlgreen, manager.

Race Meets, Hill Climbs, Etc.

Feb. 22.....—Boston, 150-mile Endurance Run, Bay State Automobile Association.
Feb. 25.....—Brooklyn, N. Y., Economy Run Montauk and Return, Long Island Automobile Club.
Mar. 2-7.....—Ormond-Daytona, Fla., Automobile Club of America.
Mar. 18-19.....—Savannah, Ga., Savannah Automobile Club.
Apr. 24.....—Briarcliff Trophy Race, Westchester County, N. Y. Robert L. Morrell, chairman.
May 4-5.....—Harrisburg-Philadelphia and Return, 150-mile Endurance Run, Motor Club of Harrisburg.
May 15.....—Chicago, Algonquin Hill Climb, Chicago Motor Club.
May 30.....—Bridgeport, Conn., Sport Hill Climb, Bridgeport Automobile Club.
June 24-27.....—Chicago, 1,200-mile Reliability Run, Chicago Motor Club.
Sept. 14.....—Chicago, Annual Economy Run, Chicago Motor Club.

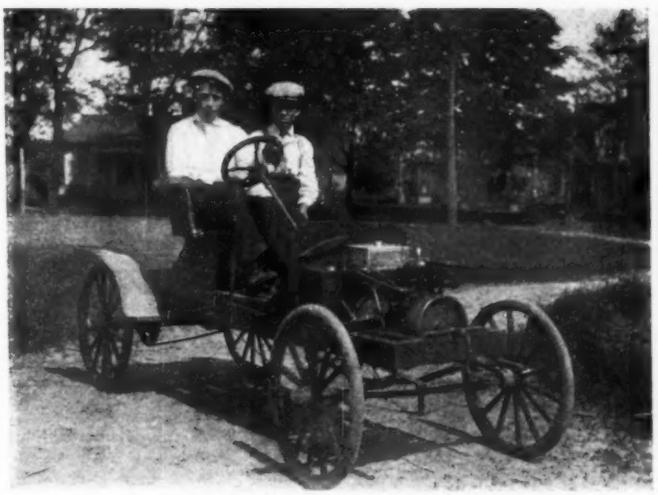
FOREIGN.

Shows.

Mar. 21-28.....—London, Agricultural Hall, Cordingley's Show.
May 17-June 2..—Moscow, Russia, International Automobile Exposition, Automobile Club of Moscow.

Race Meets, Hill Climbs, Etc.

April 1-13.....—Monaco Motor Boat Races and Motor Boat Exhibition, International Sporting Club of Monaco.
April 25-May 25—Industrial Vehicle Competition, Automobile Club of France.
May.....—Paris, Competition for Agricultural Automobiles, auspices of "L'Auto." (Date to be announced.)
May 10.....—Sicily, Targa Florio, Automobile Club of Italy.
June 1-18.....—Reliability Trials for Pleasure Cars, Automobile Club of Great Britain.
June 9-17.....—Touring Competition for the Prince Henry of Prussia Prize, Germany, Imperial Automobile Club of Germany.
July 6..... ..—Voiturette Grand Prix, Dieppe Circuit (Automobile Club of France).
July 7.....—Grand Prix of Automobile Club of France, Dieppe Circuit.
July 13-17.....—Ostend, Belgium, International Race Week, Automobile Club of Ostend.
July 20-30.....—Ardennes Circuit Races and Coupe de Liederke, Automobile Club of Belgium.
Aug.....—France, Coupe de la Presse, Automobile Club of France. (Exact date to be announced.)
Aug. 29-30.....—France, Mont Ventoux Hill Climb, Vaucluse Automobile Club.
Sept. 1-8.....—French Voiturette Contest, auspices of "L'Auto."
Oct.....—Berlin, Germany, Gordon-Bennett Balloon Race, Aeronautical Club of Berlin.



WILFORD AND WILFRED GODDARD IN THE AUTO THEY BUILT.

HOW TWO OHIO BOYS MADE AN AUTO.

CONNEAUT, O., Feb. 17.—The problem of raising sufficient cash to purchase an automobile, even a one-lunger, second-hand, sold out cheap, looked too long a task for a couple of fifteen-year-old boys. By the time they had scraped up sufficient notes to be able to stroll into the store and look over the machine with the critical eye of a real purchaser, they would probably be too old to be content with such a production. Besides, they could not wait years, anyway.

So Wilford and Winfred Goddard, twin brothers, resolved they would build their own automobile—design it, make the parts, fit them together, paint the machine and drive it without any outside aid. Making an engine was certainly beyond them. But as many a car builder buys his engine, why should not they? By gathering up all spare cash, uniting the sums, cutting off luxuries for a few weeks and generally exercising supervision over their finances, the amount was raised and the order placed for a single-cylinder engine. There was plenty of material around the house, and little by little the automobile grew into form until finally critics ceased to prophesy that it would never go. Four large carriage wheels cut down to a reasonable size and fitted with 28-inch rims and standard bicycle tires with an extra cover, supplied what was wanted in this department. Two lengths of wood and suitable cross sections of the same material supplied the frame.

WM. L. MULLER, OF DAVENPORT, IA., IN HIS PEERLESS.

Mr. Muller is one of Iowa's most enthusiastic automobilists and has driven his own car many thousands of miles during the past season.

THE AUTOMOBILE

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GRIST OF AUTOMOBILE LEGISLATIVE MILL.

It was to be expected that the appearance on the highways of a new means of transportation would bring with it the necessity of radical revision and readjustment of the existing laws relating thereto. Anything which is new incurs antagonism from that which has hitherto met the requirements, and the automobile has had and is having the usual experience coincident with the coming of a new factor in modern progress.

Throughout the country at the present time, not only in State Legislatures, but also in Congress, there is being heard argument for and against automobile legislation, some of it based on common sense, some of it proposed in a spirit of oppression; some of it meeting with approval and some of it denounced in unmeasured terms.

In one State, Connecticut, we find a common-sense law which seems to answer the needs of the situation; in another State, New Jersey, we find a most obnoxious law and a renewed effort to make it still more drastic. In New York, Ohio, Rhode Island and other States legislation of various kinds is going through the mill, and, while the grist will not be equally well ground in all commonwealths, the general tendency is towards better treatment of the automobile, brought about by a favorable public sentiment, unfortunately delayed in some sections by the heedless and criminal actions of the few who deserve prosecution, though in bringing them to their just desserts many have been and are being subjected to persecution.

Only through organized efforts—local, State and national—can the flood of legislation be kept in well-defined channels, and in supporting the present administration of the American Automobile Association every automobilist is in reality doing nothing more than insuring conditions satisfactory to himself.

If the Federal Registration bill, introduced in Congress by the American Automobile Association, progresses through the national mill and emerges a law, there should follow the united thanks of automobilists to those men who are now working indefatigably for a consummation desired from one end of the country to the other. If Congressman Moon's opinions, expressed at the banquet of the Automobile Club of Germantown, are concurred in by his fellow-legislators, then it would appear that there is a most excellent chance for the measure that will prove a monument to those responsible for its enactment.

* * *

RESUMPTION OF INDUSTRIAL ACTIVITY.

Reports from all parts of the country are to be found every morning in the daily papers telling that mills and foundries are starting up, and these announcements are bringing home to the observant the fact that within a short time the return of confidence and the resumption of industrial activity will be complete. But as the burnt child dreads the fire, so the manufacturer who saw things go down last fall shows a natural hesitation to immediately jump into the former way of doing things. His confidence has been restored, but not to the extent where plans can be made regardless of what has taken place; so that, while the average maker of automobiles does not regard the future of the industry as one whit less bright or substantial than it was a year ago—and there is no reason whatever why he should—there is a feeling that a more conservative policy may be adopted.

Primarily this will mean a reduced output during the coming season, considering the number of cars built alone, but it will not be simply from the reason that the manufacturers as a whole have come to the decision to produce a lesser number of cars than their original plans for 1908 called for. There are numerous phases of the situation brought about by the late unpleasantness that must be taken into consideration before prevailing conditions can be properly analyzed. Whenever a crash comes, or conditions drop from normal even but little, there are always a certain number who feel its effect first. They are the weak outposts who depend for their existence upon the continuance of highly prosperous conditions—"easy money times," in other words—and they are naturally the first to go down. This was the case in the automobile industry to a greater extent than in any other. Their disappearance will be accountable for the lessening of the present year's production by not a few machines of questionable value, and if nothing else had been accomplished by the recent slump, there would be considerable for which to be thankful. Few well-established builders closed their plants completely, and none is now in that condition, while many are running full time. Orders are coming in faster, and soon the manufacturing season will be in full swing. A little conservatism will do no harm.

CONGRESSMAN MOON ON FEDERAL REGISTRATION BILL

PHILADELPHIA, Feb. 15.—At the sixth annual banquet of the Automobile Club of Germantown, held to-night in the well-equipped home of the organization, those present heard most reassuring speeches from a governor, a mayor and a congressman. In the hundred and a half of listeners there were included men prominent in the city's business and political worlds and of unquestioned influence and substantiality.

Mayor Reyburn was the first speaker introduced by President Thomas B. Prosser, and the city's chief magistrate plainly indicated in his remarks that he is a friend of the automobilist.

Governor Edwin S. Stuart particularly dwelt upon the subject of good roads, and in the course of his closely followed speech said:

The matter of good roads is a matter of great importance to me, and I am doing all in my power to improve the condition of the State highways. The Legislature in its last session appropriated all the money that it could spare from the Treasury, but to get roads as good as those of Europe takes time and patience. If you motorists will only give us time we will have in this State the finest highways in the country, but in obtaining this it must be impressed upon township road supervisors that they must keep them in repair after the State builds them. We need the help of automobilists in securing this aid.

But it was the speech of Congressman Reuben O. Moon, a member of the Judiciary Committee of the House of Representatives, that met with the greatest acclaim. The Federal Registration bill, prepared and introduced by the Legislative Board of the American Automobile Association, is now before this committee and a public hearing has been scheduled for March 12. Congressman Moon, in the course of his forcibly delivered speech, said:

I do not believe that there is to-day in Washington a member of Congress of either house who does not know that an automobile bill is pending. I do not believe there is a member who has not received letters from his automobiling constituents upon this matter, and they all come to me as a result, because I am a member of the committee which must pass upon it before it can be presented before Congress.

I can assure you and all automobilists that you are going to receive fair, earnest and sincere consideration in Washington. There is no spirit in the National Capitol among the legislative bodies which is inimical to what you desire. Everyone realizes that there are at present serious obstacles to the progress of the sport and business of automobiling which need Federal attention. The whole matter depends upon the constitutional power of Congress, and though speaking unofficially, I believe that we have the invested power to grant what you desire, and you are entitled to our earnest consideration.

Freedom of intercourse between the various parts of the country is important, and anything that will break down sectional pride, prejudice and jealousy, is something which goes to make up and strengthen the nation. You are utilizing a novel and effective method of doing this, and broadening interstate relations. It is a fact that commerce is not the only bond of unity between the States, but there must be an intermingling between the people, and this is a great link in the strength of the national chain. There is nothing in the country to-day that is doing more to strengthen the weak links than the automobile. It will give us great pleasure to help you in securing this national legislation, and when I can serve you in any way you have only to call upon Mr. Moon in Washington.

It was to be expected that these words from a congressman would be received with great satisfaction and applause.

Charles W. Bosworth, of Springfield, Mass., next supplied an excellent "fireworks" speech of the evening, and following him came O. S. Henniger, of Allentown, who made the humorous address of the night.

At the head table also sat District Attorney S. P. Rotan, E. T. Stotesbury, Vice-President C. M. Thompson, and Robert P. Hooper, chairman of the A. A. A. Good Roads Board. The guests included Frederick H. Elliott, secretary of the A. A. A.; Charles J. Swain, ex-president of the Quaker City Motor Club, and A. G. Batchelder, managing editor of THE AUTOMOBILE. The function was the most successful in the history of the organization.

FEDERAL AID IN ROADS BUILDING.

WASHINGTON, D. C., Feb. 17.—Out of the mass of good roads bills that have been introduced in Congress since the opening of the present session, it is likely that a bill will be evolved that can be enacted into law. There is no gainsaying the fact that the good roads movement has many friends in Congress, and they believe the time is ripe for the Federal Government to step in and do something for the good of the country's highways.

Not to be outdone by Representative Currier, who wants Congress to establish a National Highways Commission, Representative Sulzer, who represents a New York City district in Congress, has framed a bill to promote the construction of good roads and the efficiency of the postal service. In brief, the bill provides that upon the application of the proper authorities representing any State, the Secretary of the Treasury shall loan to such State for the construction or improvement of post roads within such State the actual cost of such construction or improvement. The Post Office Department is to have general supervision over the construction or improvement of said post roads.

The provision is made that one twenty-fifth part of all money received from the United States Government under this arrangement must be returned to the United States Treasury each year by the State receiving the same until the whole amount received by such State shall have been returned. No interest is to be charged upon money loaned in this manner, provided it is promptly repaid, as stipulated, but a 5 per centum interest charge will be added to all deferred payments.

FRANCE AND THE ROADS PROBLEM.

PARIS, Feb. 10.— Frankly recognizing theat even the best of existing highways are not what they should be for present methods of transportation, and are likely to become still less suited with the growth of the automobile, Minister of Public Works Barthou has called an international conference, to be held probably in Paris preceding the annual automobile Salon. The general study will be on the adaptation of highways to new methods of travel, the principal divisions of the congress being:

1. Road construction and repair: road foundations, methods of work, results obtained.
2. General methods of road preservation: stone roads, paved roads, and various.
3. Anti-dust methods: the use of tar and other products, sweeping and watering, technical and economic results.
4. Future roads: laying out in length and cross section, surface, various difficulties, curves, special tracks, etc.
5. Traffic: effect of new methods of locomotion on present roads, damage due to speed and weight, influence of tires, steel rims, exhaust, etc.; effect of roads on vehicles, deterioration of mechanical organs, skidding, etc.
6. Road signals: kilometric signposts, direction, distance and altitude indicators, danger signals.
7. The road and industrial transportation by trolley cars, 'buses and automobiles.

Invitations to the conference will be sent out to all automobile associations and to every organized body in any way connected with the improvement of highways, while the government of every foreign country will be asked by the French Ministry to send an official delegate. The question of perfect highway throughout Europe has become such an important one that much good is anticipated from the gathering.

M. J. BUDLONG LEAVES A. L. A. M. TO JOIN PACKARD.

AFTER a few months at the head of the Association of Licensed Automobile Manufacturers, Milton J. Budlong will shortly join the staff of the Packard Motor Car Company in the capacity of assistant general manager.

Interviewed at the offices of the A. L. A. M., Mr. Budlong declared that there was now no reason to hide the fact that his connection with the Licensed Association had never been considered as other than a temporary one. "When I took up the direction of the association affairs last November I was already in negotiation with the Packard company, and my departure from the association affairs is, therefore, no sudden move.

"For the last four months the work of reorganization of the A. L. A. M. has been carried on so thoroughly that the association is now in a stronger and more satisfactory condition than at any previous period. While there has been a reduction of expenses, there has been no curtailment of the activities of the association; better results are being obtained by more harmonious working, litigation in connection with the Selden patent is progressing satisfactorily, and the whole situation is one of greater strength.

"The agency position is one point on which erroneous impressions have got abroad. Instead of abandonment, this branch of the association work will be carried on with more thoroughness than ever, the exclusive agency policy being enforced as it has not been done in the past. The technical work, too, will be vigorously pursued, the closing of the laboratory at Hartford being but temporary. Litigation in connection with the Selden patent is in such an advanced condition that the final tests of the Selden models will positively be held Monday and Tuesday of next week."

No definite action appears to have yet been taken towards the appointment of a successor to Mr. Budlong, nor is the date of his departure altogether decided upon. "There yet remains a number of matters to be put into shape," said Mr. Budlong, "and I shall not leave the association offices until everything is on a sound footing."

From the Packard company this announcement comes: "An addition to the administrative staff of the Packard Motor Car Company brings to it, as assistant general manager, Milton J. Budlong, manager of the Association of Licensed Automobile Manufacturers. He leaves the association to join the Packard forces shortly to assist Henry B. Joy and S. D. Waldon in executive affairs. Mr. Budlong is a valuable accession to the Packard company. His well known ability as a factory executive is supplemented by a long and profitable experience. Prior to becoming manager of the A. L. A. M. last November, Mr. Budlong was for several years president of the Electric Vehicle Company. At one time he was president of the National Association of Automobile Manufacturers, while before his connection with the Electric Vehicle Company he had obtained a thorough business training by many years in both the retail and manufacturing ends of the bicycle trade."

NEWARK'S BIG SHOW OPENS FRIDAY.

NEWARK, N. J., Feb. 18.—The work of transforming the big auditorium at Electric Park into a palace of gold and white is now well under way and the exhibits will begin to arrive to-morrow, preparatory to the opening of Newark's first automobile show on Friday, February 21. The show will remain open until the following Saturday week, February 29. The following concerns have taken space: Greene Motor Car Company, Locomobile and Oldsmobile; Motor Car Company of New Jersey, Packard, Autocar, Cadillac and Northern; Herman J. Koehler, Buick and Waltham; Jacob W. Mason, Maxwell and Stoddard-Dayton; Star Motor Car Company, Pullman and Napier; W. S. Maltby, Corbin; Higrade Motor Car Company, Ford; Clavert-Zusi Company, Winton; Charles Cooper, Atlas; Osborne & Morton, Brick Church Automobile Company, Auburn; Carl H. Page Company, Peerless; Ellis Motor Car Company, Knox and Pierce Great Arrow; Rickey Machine Company, Marmon; Sheldon W. Chase, Holsman; Mitchell Auto Company of New Jersey, Plainfield Motor Company and Central Motor Company of Bloomfield, Mitchell cars; Brush-McLaren Motor Company, Brush runabout; J. J. Meyer.

YALESIANS CAN'T HAVE HILL CLIMB.

NEW HAVEN, CONN., Feb. 17.—At a weekly meeting of the New Haven Auto Dealers' Association, it was announced that the local show will be held in Music Hall, March 18 to 24. Special nights have been designated.

At a meeting of the City Park Board held Saturday a petition was received from the Yale Auto Club asking that permission be granted them to hold a hill climbing contest in East or West Rock parks during the coming spring. Both of these parks are the finest mountain parks in this part of the country, but automobiles are prohibited by city ordinances. In view of this fact, the board decided that it had no authority to grant this request.

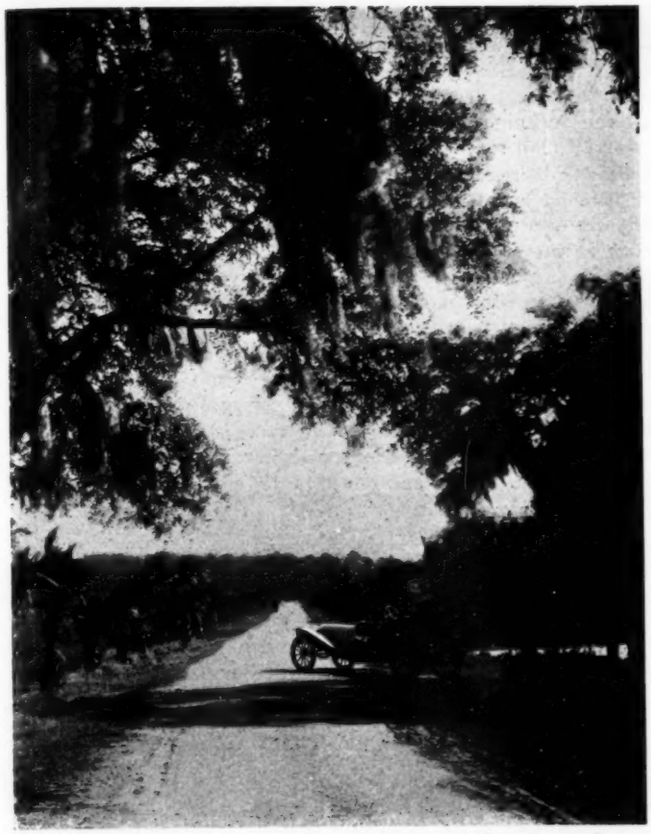
DETROIT SUPPORTED TWO SHOWS.

DETROIT, MICH., Feb. 17.—All doubt as to the ability of Detroit to support two automobile shows appears to have been set at rest by last week's achievement, when the Tri-State Automobile and Sportsmen's Association held its seventh annual show. It was freely predicted that the dealers' show held earlier in the winter at Riverview Park would kill the second one, but these fears proved unfounded. Not only was the attendance up to former marks, but sales were of a gratifying nature. Some ninety cars were sold at the armory, the total amount involved in the transactions being close to $125,000. Besides this a considerable amount of wholesale business was transacted.

Whether there will be two shows another year is yet to be determined. The Tri-State Association has engaged the armory for 1909, and the attitude of the Dealers' Association is being awaited with interest. Manager E. E. McMaster, to whose good work can be attributed the success achieved by the Tri-State Association, was presented with a handsome diamond ring just before the close of the show, the gift being from exhibitors as a token of their appreciation for what he had done.

BISON CITY SHOW WILL BE A FINE ONE.

BUFFALO, N. Y., Feb. 17.—Arrangements for the automobile show to be held in Convention Hall during the week of March 9 are well under way. Secretary D. H. Lewis declares the approaching display will be the finest that the Buffalo Automobile Club and Dealers' Association have ever attempted. The feature, aside from the many exhibits, will be the ceiling and mural decorations. These will be done in blue and gold, and the effect will be, when the myriad electric lights are turned on, of a canopied heaven containing thousands of stars. There will be four large groups of electric lights, each composed of 500 bulbs, and also fourteen festoons of electric illuminations hanging from the ceiling.



ONE OF THE BEST STRETCHES ON LA ROCHE AVENUE.

SAVANNAH'S BIG ROAD MEET.

SAVANNAH, GA., Feb. 17.—With the stock chassis speed endurance contests a little less than a month away, Savannahians are wrought up over the idea of the big road races, and from the inquiries which are pouring in the success of the meet will far exceed the most sanguine expectations of the Savannah Automobile Club when it undertook to promote the races. Everything is being rapidly whipped into shape for the contests, and the local club is on the last lap of the preparations for the three events. At a recent meeting of the executive board having the races in charge at this end, on which are the mayor and the most prominent citizens, a syndicate of ten of the monied men of the city was formed to underwrite the affair, thus removing any financial obstacle which might have been encountered. Immediately following this action, Mayor Tiedeman wired twenty-nine manufacturers, whose entries have not yet been received, a guarantee that the races would be held on the dates announced.

With the obstacles which appear to be thrown in the way of the proposed Long Island course for the Vanderbilt Cup race, the Savannah Automobile Club is already getting ready to make a bid for this blue ribbon event of American automobile racing. It is believed here that the local course is far and away the best one available for the contest for the Vanderbilt Cup, and that Savannah will, by its conduct of the stock car races, establish her claim to the bigger event. Added to the magnificent course which is offered, it is believed that the facilities for policing it are the best which can be obtained in America.

In Savannah, a city of 75,000 inhabitants, there is a citizen soldiery, composing the National Guard, of over 1,500 men. These are the flower of the city's population. At recent meetings of the commands which make up this force, resolutions were adopted without a dissenting vote offering to police the course for the stock car races. Following this up, the Hon. Hoke Smith, Governor of the State, gave his promise to the people here that he would order out the militia to police the course. This is but a detail which shows the interest being manifested in the races. The County Commissioners have tendered the services of the convicts to assist in preparing the roads for the races.

A slight change has been made in the course, which eliminates four turns and substitutes two others. This change leaves the course practically the same length as before, and in addition gives a straightaway run to the grandstands of a little over three miles of the widest and best roads in the course. In order to make this change a stretch of road a quarter of a mile has to be paved, but this work is already under way. Practically few roads intersect the course. As it stands a corner of the course is bisected by one of the big railway systems entering the city, but this is to be avoided by a wide sweeping curve which will leave the railroad tracks outside. Where the suburban street railway lines bisect the course they are to be paved over, and high foot bridges erected over the tracks, so that passengers may be transferred from one side of the road to the other without interfering with the progress of the races.

Day of Big Race to Be Civic Holiday.

Mayor Tiedeman has announced that he will declare a public holiday for March 19, when the 360-mile race will be held for the Savannah Trophy. The Clearing House Association will probably declare Saturday banking hours for both days of the races. The railroads have promised cheap rates from all points within a wide radius, and tourist rates will prevail from the more distant points. An issue of 25,000 sets of postcards showing twelve views of different parts of the course is being sent out. A quarter of a million booklets have been printed by the Chamber of Commerce advertising the races, and these are being stuffed into the mail sent out by the business houses of the city.

The interest in Savannah is being matched by a goodly measure of interest from the outside. A number of men representing the manufacturers have visited Savannah and hardly a day passes but some new ones show up. These are obtaining a look over the course for the purpose of reporting to the manufacturers. Frank Leland, who will share with Barney Oldfield the honor of piloting the Stearns entries, has been on the ground and drove a Stearns car over the course. He remained in the city several days, departing with the remark on the course that it was "simply wonderful." R. B. North, representing the Locomobile people, is now in the city. W. S. Morton Mead, of the Lozier Company, has just left. He says: "The people in the North don't know such a course exists in America."

Walter West, of the Empire Tire Company, was among the several representatives of tire companies to go over the course within the last few days. He says: "There is no course in the United States so adapted to speed as the Savannah course." R. H. Johnston, of the White Company, says: "It will be a record-breaking event." J. M. Rich, of Minneapolis, a tourist who is wintering at Savannah with his Stoddard-Dayton roadster, says of the roads: "There are no such roads in the United States as those around Savannah, and I have traveled all over the country."

In fact, the Savannah people are beginning to fear that the roads are too good for the Vanderbilt Cup race. One member of the Technical Board of the A. A. A., when taken over the course previous to the granting of the sanction for the March meeting, inquired, "Where are your hills?" He thought there ought to be hills to give their climbing as a feature of the tests the race would impose on the machines. The country is as flat as a billiard table, but if the hills are insisted on the Savannahians would be tempted to build some artificial ones just to be accommodating. As a speed-eater

H. S. RICH TRYING SAVANNAH COURSE IN HIS STODDARD-DAYTON.

the course can't be beat. Local drivers have negotiated some of the straight stretches at 79 miles an hour. Mr. North, in his Locomobile, jumped his speedmeter to its limit, seventy miles, within a short time after his getaway on the first stretch that goes straight as a crow flies to its first turn five miles away.

The contract for the first grandstand, to seat 5,000, has been let, and the city has granted space for the parking of automobiles and carriages. The decision as to the trophies, which will cost $3,000, and for which designs have been submitted by Tiffany, Gorham and other nationally known silversmiths, will be made within a few days.

In many Northern cities special cars are being arranged for to bring parties to Savannah. Sidney B. Bowman, the New York agent for the Apperson, writes that his party will have a special car from New York city on March 16. President Chalmers and Vice-President Coffin, of the Thomas Detroit Motor Company, are among other tradesmen coming.

Event No. 3, it has been officially announced, is not to be limited to six-cylinder cars, but will be open to all cars of 575 or more cubic inches cylinder displacement, providing they otherwise conform to stock limitations.

Wants Eudurance Run, Philadelphia to Savannah.

PHILADELPHIA, Feb. 17.—Ever since the New Year's run of the Quaker City Motor Club, A. J. King, manager of the local Studebaker agency, has been carrying a good-sized chip on his shoulder. His car was one of the three clean-scorers that was allowed to start in the run-over. It will be recalled that the White was declared the ultimate winner after one of the hardest and closest contests on record. Now Manager King sees a chance to get even. The rush for the Savannah races next month will attract quite a number of local enthusiasts, and he proposes a race from Philadelphia to Savannah, with the White, Peerless and Studebaker as contestants.

MAXWELL CHALLENGE ACCEPTED BY STANLEY.

The Maxwell twelve-cylinder racer and F. E. Stanley's short-distance steam sprinter will struggle for speed supremacy on some date yet to be settled between May 13 and 17. When the Dewar trophy was removed from the program of the Ormond meet, the Maxwell-Briscoe Company issued a challenge to the Stanley for a special match on the Florida beach. It is not possible to take the steamer to Ormond, but Mr. Stanley is willing to meet his multiple-cylinder adversary at a later date and has agreed to the period selected. During the races at Ormond F. E. Stanley and B. J. Briscoe, Jr., will confer on details. Atlantic City, Cape May, or some other straightaway will be chosen and other cars may enter.

FLORIDA'S MEET TO TAKE PLACE.

All doubt about the holding of the Ormond-Daytona Beach races in Florida during the week of March 2-7 was set at rest Monday, when, after a meeting of the Contest Committee of the Automobile Club of America, Chairman Robert Lee Morrell made the definite statement that the races would be held as advertised. He said:

"We have received no less than twenty-eight entries for the six events, which include twelve of the highest powered cars in the world, and if records do not fall next month I will be surprised. So many rumors have been in circulation in regard to these races that many dealers and manufacturers have refrained from entering their cars, and in order to give them an opportunity to come in we have extended the time for receiving entries up to February 29. Mr. Butler and myself will leave New York on Saturday for Florida to arrange the final details for the races. We have also secured a special compartment club car for the accommodation of the members and contestants, which will leave New York Saturday, February 29, over the Seaboard line."

MISSOURI WANTS VANDERBILT CUP RACE.

JEFFERSON CITY, MO., Feb. 17.—The St. Louis Automobile Club wants the Vanderbilt Cup race for 1908 held in Missouri. The club has been after Governor Folk regarding the use of troops in guarding a course. To-day Governor Folk stated that he would permit the use of the National Guard to police a circuit for the Vanderbilt Cup race if it is held in Missouri. Two courses are being considered, both being within twenty-five miles of the city. It is said that either one of the proposed courses will meet all the requirements of the most exacting racing board.

CONVICTS ARE AT WORK ON THE FAST SAVANNAH COURSE.

IN THE PARLIAMENTS OF THE AUTO CLUBS

BUFFALO WANTS THE NATIONAL CONVENTION.

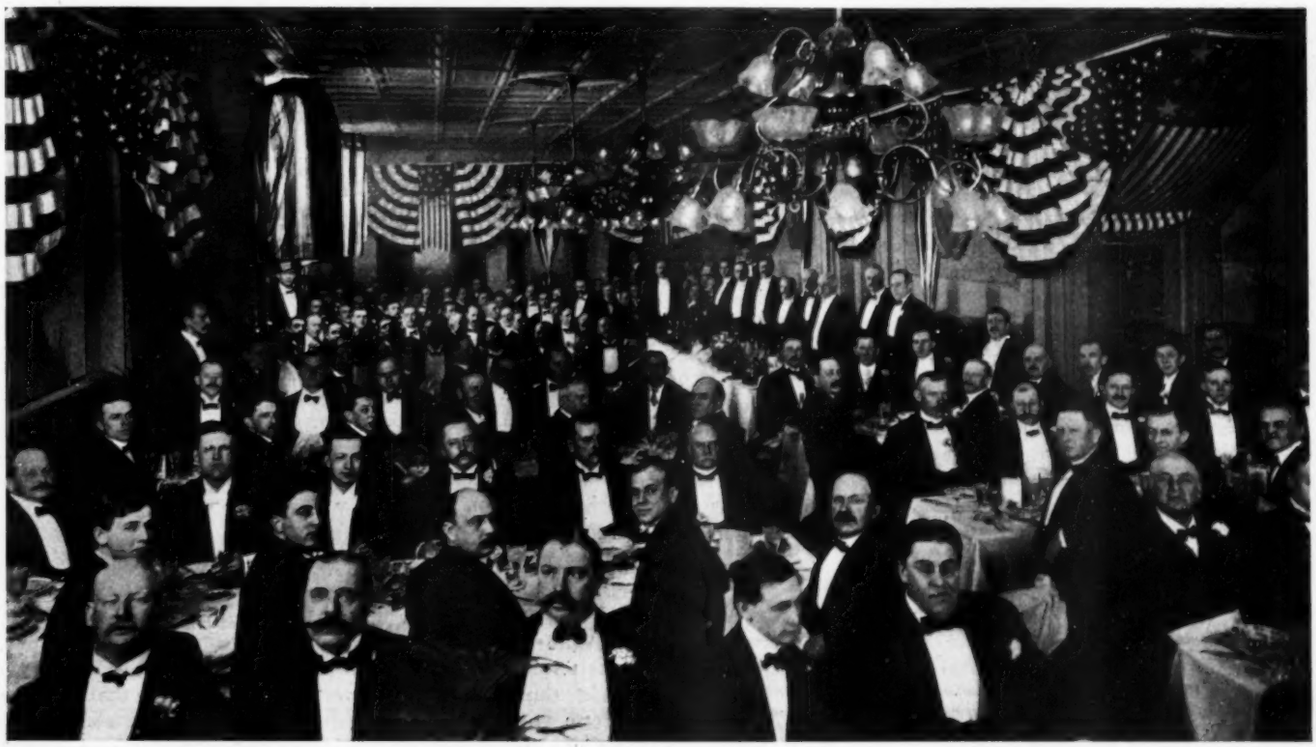
BUFFALO, N. Y., Feb. 17.—The Automobile Club of Buffalo held its first of a series of winter entertainments in the Main street clubrooms last Saturday night. President Hower reported that the organization was rapidly closing on the Automobile Club of America in the race for the largest membership of any automobile club in the country. The Buffalo club now has a membership of 1,099 to its rival's 1,500. He reported progress in the matter of the Niagara boulevard.

President William H. Hotchkiss of the American Automobile Association called upon the members to secure for Buffalo this summer the National Automobile Convention. He said the Association would hold its first great convention this year, and said the gathering would bring together all good roads experts, highway commissioners, automobile legislators and motor enthusiasts. It would be a general congress for all interested in automobiling, at which the solution of many difficult questions would undoubtedly take place. There would also be speed and technical tests. President Hotchkiss said Buffalo would again be the starting point of the tour.

President Hower announced that the directors had subscribed $500 to land the convention, and E. R. Thomas, of the E. R. Thomas Motor Company, had personally contributed $250. He said he had an assurance that G. N. Pierce, of the George N. Pierce Company, would contribute an equal amount. Buffalo's claims on the convention are strong and consistent, as the city is a central shipping point which would make it easy to land cars there without undue expense, while it also has another strong factor in its favor in its close proximity to Niagara Falls, which is an attraction of never-failing interest that will probably help tip the balance of favor in the direction of the city by the lake. Various forms of vaudeville entertainment were arranged by Howard D. Herr, the chairman of the entertainment committee.

HARRISBURG'S CLUB ELECTS NEW OFFICERS.

HARRISBURG, PA., Feb. 17.—At the annual meeting of the Motor Club of Harrisburg, held at its headquarters in the Patriot Building, the following officers were unanimously elected: Vance C. McCormick, president; O. C. Robertson, first vice-president; C. C. Cumbler, second vice-president; J. Clyde Myton, third vice-president; J. Sydney Sible, secretary, and J. C. Nissley, treasurer. J. C. Aldrich was elected to the board of governors for a two-year term, and Howard L. Jenkins, James McCormick, Jr., and Roy Senseman for three-year terms. The election was followed by a smoker, at which the plans for the big endurance run next May were discussed at length. At the business meeting which preceded the election, the good roads committee read a report of its work during the past year and talks on good roads were given by J. C. Nissley, J. S. Sible and O. C. Robertson. R. C. Haldeman, chairman of the contest committee, reported on the work accomplished by his committee during the year, as well as the plans for this year's work, while Charles A. Sefton, head of the membership committee, reported good progress. Secretary Sible broached the matter of affiliation with the Pennsylvania Motor Federation, and it was resolved to apply for membership. W. O. Hickok, 3d, brought to the attention of the club members the Federal Registration bill now pending, and it was resolved that a committee of three be appointed to call on Congressman Olmstead to ask his support.



BANQUET NEW JERSEY AUTOMOBILE CLUB, HELD, NEWARK, N J., FEBRUARY 6, AT WHICH THE JERSEY LAW WAS DISCUSSED.

HARTFORD'S ENDURANCE RUN SET FOR MAY 16.

HARTFORD, CONN., Feb. 17.—Saturday, May 16, is the day that has been selected for the 200-mile endurance run of the Automobile Club of Hartford, and the following route has been decided upon: Hartford to Middletown, to Meriden, to Southington, to Waterbury, to Thomaston, to Bristol, to New

Britain, to Hartford. The distance is approximately 100 miles, and the course must be covered twice. The event will be under the direction of the committee on racing, which consists of Hiram P. Maxim, chairman; C. H. Gillette, C. D. Rice, F. W. Dart and W. T. Plimpton. At the last meeting of the club 27 new members were admitted.

CANADA'S MOTOR LEAGUE ACTIVE.

TORONTO, ONT., Feb. 14.—An enthusiastic annual meeting of the Ontario Motor League was held the other evening at the King Edward Hotel. Noel Marshall, the retiring president, occupied the chair. The election of officers for the ensuing year resulted as follows: President, T. A. Russell; vice-president, Wm. Dobie; directors, George H. Gooderham, A. E. Chatterson, F. E. Mutton, W. Stone, J. C. Eaton, F. F. Miller, W. W. Doran, George Graham, Lloyd Harris, Paul J. Myler, O. Hezzlewood and Noel Marshall.

It will be remembered that the Ontario Motor League a year ago succeeded the Toronto Automobile Club, and is now a provincial organization. The membership has extended largely to members outside of Toronto, and it is the purpose of the league to encourage the organization of local clubs in outside towns, which will be in affiliation with it, and thus strengthen the influence of the Ontario Motor League in promoting the common interests of motorists in Ontario.

HERE'S AN IDEA TO INCREASE MEMBERSHIP.

WASHINGTON, D. C., Feb. 17.—A novel plan has been devised by the Automobile Club of Washington to increase its membership. The entire membership has been divided into two parts, one part of which will be captained by F. S. Bliven and the other by A. G. Newmeyer, and the two opposing sides will endeavor to bring in the largest number of new members. The losing side will stand the expense of a smoker at the club's country home. Mr. Bliven will have as his lieutenant Rudolph Jose, while Harry Ward will act as his secretary. Mr. Newmeyer has designated H. Chadwick Hunter and Royce Hough to act in the same capacity for him. Each side is out to win and the rivalry is intense.

CLEVELAND'S CLUB IS A LIVE A. A. A. BODY.

CLEVELAND, O., Feb. 17.—In the bulletin of the Cleveland Automobile Club, just issued, are the following paragraphs:

"Have you ever stopped to think that you are delaying the advent of ideal motoring conditions whenever you thoughtlessly neglect your customary courtesy to the driver of the horse-drawn vehicle?"

"The quickest way to 'educate' the farmer is to sell him an automobile—within ten days after he'll be clamoring for a Uniform Motor Vehicle Bill and the passage of the Good Roads Bill."

"A careful and courteous driver presents irrefutable argument for more liberal laws."

"Isn't it worth $10 a year to you to feel that you are a member of the Cleveland Automobile Club, the American Automobile Association and the Ohio State Automobile Association, and are doing your part to help motoring conditions throughout the city, State and nation?"

MANITOBIANS ORGANIZE FOR PROTECTION.

WINNIPEG, Man., Feb. 15.—The efforts of Manitoba farmers to rush a bill through the legislature governing automobiles has led to the formation of the Manitoba Motor League. At a special meeting held at the Winnipeg Grain Exchange the following officers were elected for the season of 1908: Honorary President, Judge Phippen, Winnipeg Automobile Club; president, W. A. Elliott, Brandon Automobile Club; first vice-president, D. Boyce Sprague, Winnipeg Automobile Club; second vice-president, Joseph Maw, Winnipeg Automobile Club; third vice-president, Harry Stevens, Portage La Prairie Automobile Club; secretary, W. R. Bacolf, Winnipeg Automobile Club; treasurer, L. R. Barrett, Winnipeg Automobile Club.

DOINGS OF THE SKY NAVIGATORS.

ELEVEN BIDS FOR ARMY DIRIGIBLE.

Eleven persons or firms are willing to build a dirigible balloon for the United States Army at prices varying from $6,000 to $33,500. The bids, which are being considered at the office of Brigadier Gen. James Allen, Chief Signal Officer, closely follow the prescribed specifications and are believed to be of a sufficiently satisfactory nature to allow of an award being made. Should more than one balloon be considered suitable, an effort will be made to obtain sufficient funds to allow of the purchase of two dirigibles. The following is the complete list of bidders, with the price quoted by each:

Harry B. Schiller, 514 Brown street, Philadelphia; time, 180 days	$33,500
S. C. Rockman, 2844 Lehigh street, Philadelphia; 180 days	25,000
Peter Cooper Hewitt, Madison Square Tower, New York City; 200 days	20,000
Lewis Lupetti, Paris, France; 90 days	20,000
Capt. Raymond Anglemire, Chicago; 90 days	17,500
Carle E. Myers, Frankfort, N. Y.; 120 days	11,994
Bumbaugh and Heimann, St. Louis; 250 days	10,000
Charles Ellis, Toledo, Ohio; no time given	10,000
William Reifersheid, Streator, Ill.; 150 days	8,000
Thomas S. Baldwin, 78 Madison Square, New York City; 150 days	6,750
G. F. Myer, Hammondsport, N. Y.; 100 days	6,000

AERO CLUBS TO FORM NATIONAL FEDERATION.

Arrangements have been completed by the Aero Club of America for the formation of a national federation of the aeronautical clubs of the United States, of which there are now about one dozen. Boston, St. Louis, Philadelphia and Canton, O., four of the most influential clubs in the country, have given their support to a scheme which will doubtless in a short time combine all similar associations in the United States. The plan of federation will closely follow that adopted with considerable success in France, the federated clubs having equal representation in all matters of national interest, and the Aero Club of America representing this country in all foreign relationships.

ZEPPELIN TO BUILD A 100-PASSENGER AIRSHIP.

BERLIN, Feb. 11.—Count Zeppelin, as soon as he has completed the balloon now under construction, intends designing a dirigible airship commodious enough to convey 100 persons, a matter not at all as improbable as the majority of people would think, for past experiments all point that such a balloon could be constructed on the same principles as the present ones are, with the increased diameter and length and greatly increasing the carrying capacity. Major Hoernes, the noted Viennese expert, is of the same opinion as the Count, and both men substantiate their statements by figures.

23 ENTRIES FOR BENNETT BALLOON RACE.

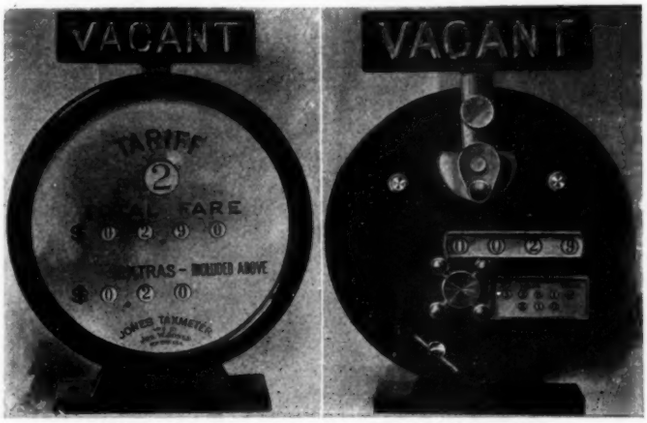
BERLIN, Feb. 11.—Twenty-three entries have already been received for the aeronautical race for the James Gordon Bennett trophy to be started from the suburbs of Berlin next October. Last year the race at St. Louis only attracted nine entries, and the first event at Paris secured sixteen starters. The countries engaged in the contest are the United States, Germany, Belgium, England, France, Italy and Spain, each with three balloons, and Switzerland with two. Russian and Austrian aeronauts have also promised to compete.

AERO CLUB ANNUAL DINNER MARCH 14.

The second annual dinner of the Aero Club of America has been fixed for March 14, at the St. Regis Hotel. The plan of seating, which was tried so successfully last year, will be repeated, members being seated in the order in which application for invitations is received.

JONES MAKES FIRST AMERICAN TAXIMETER.

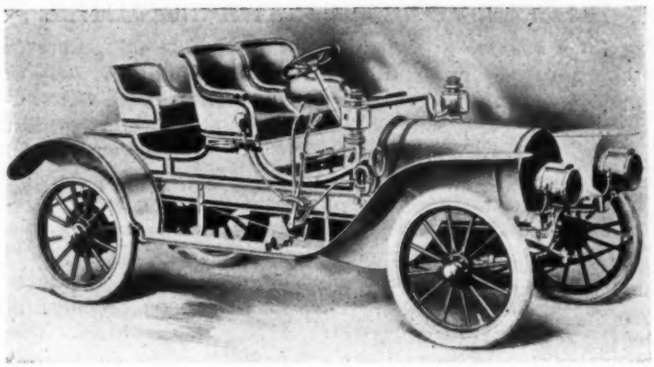
Anticipating an early demand in this country for a reliable taximeter, Joseph W. Jones, of New York, the pioneer inventor of the speedometer, made a close study of the European models three years ago when they were already in universal use on the horse cabs of Paris and Berlin. These early types of cab fare registers had numerous defects and, with the latter in mind, Mr. Jones set about designing an instrument of his own, which is now about to be placed on the market, and is known as the Jones Taxmeter. The instrument measures about seven inches in diameter by four inches through, and has a silver dial-face carrying figures indicating the tariffs and extras, as well as the total fare to be paid. The dial on the reverse gives the total of all moneys collected, total mileage and trip mileage, which can be reset by the driver. It also shows a separate count of the number of trips with single and double tariff. A vacant sign is also displayed on the rear and, when turned to a horizontal position, sets the instrument at Tariff 1 and registers the initial charge of 30 cents. For each additional quarter mile a charge of 10 cents is registered and added to the total, the driver turning a knob on the back for any extras, which are automatically totaled. For four or more passengers the driver turns the vacant sign to the left, causing the instrument to register an additional 10-cent charge for every sixth of a mile. A clock mechanism registers equivalent charges for waiting time.



FRONT AND REAR VIEWS OF THE JONES TAXIMETER.

AUTO CREDIT ASSOCIATION DOES GOOD WORK.

At its annual meeting held last month, the Automobile Trade Credit Association elected George L. Holmes, of the Jones Speedometer Company, and Fred S. Wilson, assistant secretary of the Trenton Rubber Manufacturing Company, members of the board of directors. The other members of the board are W. B. Lasher, Weed Chain Tire Grip Company; Carl Kaufman, Motor Car Equipment Company; H. B. Mirick, National Electric Supply Company; E. S. Fretz, Light Manufacturing & Foundry Company. The association, which has an office at 80 Wall street, New York City, is a purely co-operative organization, which is officered and managed by its members for their mutual benefit in the extension of credit and the collection of outstanding accounts. It is the only credit organization of its kind in the industry and is confined to manufacturers and wholesalers in the automobile and motor boat field. The officers are W. B. Lasher, Weed Tire Chain Grip Company, president; M. J. Martin, G. A. Haws Company, treasurer, and Franz Neilson, secretary. Its success is evident from the fact that claims aggregating $75,000 were turned over to it for collection during 1907, of which in excess of 75 per cent. was collected at no expense to the members other than the annual dues, which are small.

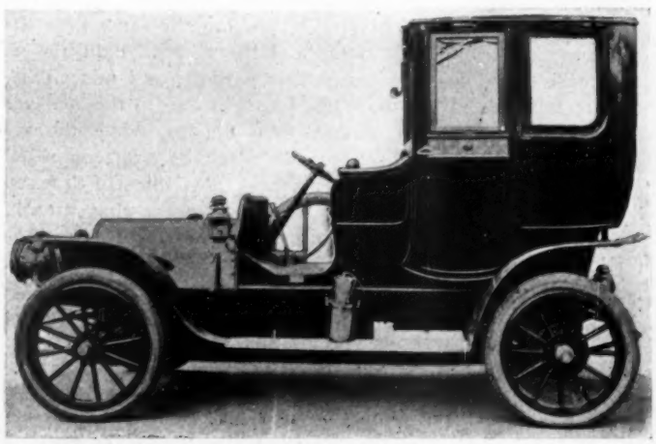


WELL DEFINED LINES OF THE NEW FRANKLIN ROADSTER.

TWO ATTRACTIVE FRANKLIN MODELS.

Now that chassis design and construction are approaching more and more to a uniform standard in many respects, not alone where the various models of the individual manufacturer are concerned, but considering American cars as a whole, regardless of the special exclusive features to be found on many of them, an increased amount of attention is being paid to the matter of body design. The latter reached the status of an art with the carriage builder many years ago, but it is only recently that the automobile manufacturer began to give it the amount of attention this highly important part of the car deserved. That is, within the past few years. Before then, the comfort of the passenger was considered a matter of secondary importance, for the builder of the car was entirely engrossed in turning out a machine that combined reliability of performance with enduring qualities.

Things have changed considerably where body-making is concerned in the past few years, and some of the automobile manufacturers can now boast of as complete a body-making plant as is to be found in any of the old-established carriage factories, while the product of this department of the works ranks as high as anything of its kind to be had, either here or abroad. Two instances of this are to be found in the Franklin cars depicted on this page. The first, heading the column, is an attractive runabout model recently produced by the H. H. Franklin Manufacturing Company, Syracuse, N. Y. It is built on the chassis of the regular Franklin Model D as a foundation, and with its neat rumble seat and racy lines is a striking addition to the popular roadster type of car. It has a four-cylinder, 28-horsepower engine, selective change-speed gear, 105-inch wheelbase, and weighs 2,000 pounds. The second car is built on the same chassis and is a special town type owned by O. J. Gude, New York.



SPECIAL TOWN CAR BUILT ON MODEL D FRANKLIN CHASSIS.

ELECTRIC VEHICLE CO. AT A STANDSTILL.

HARTFORD, CONN., Feb. 17.—On account of the failure of the main creditors of the Electric Vehicle Company to agree upon terms of reorganization, the receivers have been instructed to cut off all expenses. As a consequence most of the few remaining employees in the office have been laid off and the officers and engineers have been released.

Since the time of closing on December 10, 1907, a considerable number of the office employees have been kept to attend to closing up the business, to make a complete inventory, and to keep the accounts of the receivership. There has been also a small force in the repair department and a few men were employed in making repair parts. The latter have been entirely cut off and the repair department cut down with the possibility of the doors being shut entirely.

It seems particularly unfortunate that the company should be compelled to close its doors at this time, because, from a sales and manufacturing standpoint, the prospect was never so bright as at the close of the New York shows. It is a noteworthy fact that the sales at the recent shows exceeded those of any past year, and the sales manager, Mr. Kyte, stated that practically the entire output for the year had been disposed of, and when the crash came it was, of course, necessary to cancel all of these orders. It was also a disappointment to the American trade because of the fact that the electric transmission on the 48-horsepower touring car, perfected after years of hard work by J. B. Entz, is the only car of its kind on this side of the Atlantic, and it is confidently believed that the system is superior to any produced abroad. Ten cars of this type were built during the past year and all are in successful operation, the most of them being sold in New York, Toledo, and elsewhere.

The receiver, Mr. Nuckols, stated that nothing definite can be said of the future of the company. It may be that the creditors and stock and bondholders will not be able to agree upon terms of reorganization, in which case the plant will go to the highest bidder. But, on the other hand, it is hoped that a reorganization may be consummated and the business continued along established lines. With a reasonable capitalization there is little doubt that success would be assured.

HARTFORD RECEIVERS MAKE REPORTS.

HARTFORD, CONN., Feb. 17.—The report of Albert L. Pope, as receiver for the Pope Manufacturing Company, to the Superior Court, shows total cash receipts of $141,000 for the month of January, which with $11,000 cash on hand, makes a total of $152,000. This consists of the proceeds of accounts collected, receiver's sales, deposits on cars ordered, receipts from receivers in Massachusetts, Maryland, and the Pope Motor Car Company, Toledo, O. During the same time the disbursements totaled $129,000, and the accrued liabilities of the receiver for materials, supplies, payrolls and miscellaneous items, came to $44,000. The balances due to the receiver from receivers in other States total $14,000, while the accounts receivable from sales made reach $94,000, composed of $97,000 as per the December report, plus sales of $129,000 during January, less the cash receipts during that month. There is also due the Hartford receiver for transfer of materials to other districts, some $6,000.

In their report for the month of January, Halsey M. Barrett and Henry W. Nuckols, as receivers for the Electric Vehicle Company, show receipts as follows: Collections, $6,300; sales, $7,500; collections on receiver's account, $3,800; Selden royalties, $9,700, these sums with a few other small items making a total of $38,000 for the month. Against this the disbursements for payrolls and the like total $16,000, showing a cash balance on hand of close to $22,000.

PLAN TO REORGANIZE ROYAL COMPANY.

CLEVELAND, Feb. 17.—The Superior Savings & Trust Company, receiver of the Royal Motor Car Company, has made public the result of the findings of a special committee of three recently invited to suggest a plan for the reorganization of the company. This committee consists of Charles E. Adams, vice-president of the Cleveland Hardware Company; S. F. Haserot, president of the Haserot Canneries Company, and formerly chairman of the board of directors of the Royal Motor Car Company, and F. A. Scott, secretary and treasurer of the Superior Savings & Trust Company. The court appointed J. D. Cox, formerly president of the Cleveland Twist Drill Company; C. C. Bolton, formerly of the M. A. Hanna Company, and Ambrose Swasey, vice-president and treasurer of the Warner & Swasey Company, as appraisers to fix the value of the plant, and acting upon the report of the latter, the special committee of three recommend that a meeting of the creditors be called immediately to consider a plan for the reorganization of the company, it being proposed to capitalize the indebtedness.

The appraisers report the total assets of the company, consisting of realty, plant, equipment, machinery, parts and complete cars, at $398,000 as a going concern. The accounts receivable and other items, including membership in the A. L. A. M., bring this up to $444,000, while the liabilities total $511,000, showing an excess of the latter over assets of $67,000. The special committee, among its other findings, states that in case of dissolution, the creditors will lose some $80,000 representing the company's equity in its realty, now subject to foreclosure at any time owing to default in payments to the mortgagee, and a very large percentage of the value of the parts and unfinished cars, appraised at $98,000, as the latter would sell for little or nothing in their present state. It also finds that there are about 400 creditors, 235 of which hold claims of $100 or less, and it is recommended that the latter, amounting to about $6,000, be paid off by the receiver. The plan calls for the issue of preferred stock to the remaining creditors and their control of the company until 50 per cent. of such preferred stock shall have been retired, then a limited representation of the old stockholders.

NEW CATALOGS THAT HAVE BEEN RECEIVED.

New York Sporting Goods Company.—Dealers in automobile accessories and motorcycle supplies will be interested in the new catalogue published by this house from their headquarters at 17 Warren street, New York. It is an attractive publication, showing all kinds of supplies for automobile purposes. The price list shows the net cost, the confidential quotations only being given to those who are legitimately engaged in the trade.

Imperial Brass Manufacturing Company, Chicago.—Practically all brass work employed in connection with an automobile being handled by this firm, the 1908 catalogue covers a very extensive field. Some of the more prominent articles in the well-produced and carefully illustrated catalogue are pumps, cocks and valves, lamps and lamp brackets, radiator and hood trimmings, and body fittings.

Wright Cooler and Hood Mfg. Company, Chicago.—Automobile radiators, mudguards, gasoline tanks, engine pans and garage floor pans form the chief items in the catalogue sent forth from this house. Illustrations are given of a number of standard lines in radiator construction and folding and stationary hoods.

McCord & Company, Chicago.—Force-feed lubricators are expected from a catalogue bearing the name of this firm, and are to be found the 16-page catalogue giving, in addition to a varied series of lubricators, some particulars of McCord radiators, gaskets and coiled wire belting.

BRIEF ITEMS OF NEWS AND TRADE MISCELLANY

Realizing that Canada is becoming one of the best export fields open to the American manufacturer, the Studebaker Automobile Company, New York, of which C. F. Redden is general manager, will make an exhibit at Toronto, Ont., at the automobile show to open there on March 20.

D. P. Nichols & Co., 116-122 West Brookline street, Boston, Mass., are building for J. M. Duggan, a convertible limousine ambulance. This is a new departure in the ambulance line, being so designed that it has at all times the appearance of a stylish private car. When in use as an ambulance it is provided with a cot, pneumatic mattress and all necessary equipment, with room inside for two passengers besides the patient and cot; and when not arranged as an ambulance is a luxurious eight-passenger limousine. This car is intended for hospital and private service, where patrons wish to avoid the conspicuousness of an ordinary ambulance. Nichols & Co. are endeavoring to complete this car for exhibition at the Boston show, March 7-14.

Under the title of the "P. & H." Tire Company, a firm has just been organized to market the "P. and H." reinforced inner tube. The officers are: R. G. Howell, president; Paul H. Pelletreau, secretary and treasurer, and J. D. Prince, general manager. The new concern will open an office at 1,657 Broadway, New York. The "P. & H" tube is designed to reinforce the outer casing of the tire and differs from the regular inner tube in that it is reinforced with two layers of fabric laid in such a manner as to give the required elasticity. This reinforcement is said to give an increase of more than ten times the strength of the inner tubes now commonly used, therby preventing blowouts, pinching and other prevailing troubles.

"While the West has always been a good field for automobiles, I believe that the Western sales for 1908 will eclipse those of previous years," says W. H. Van Dervoort, maker of the Moline car and auditor of the American Motor Car Manufacturers' Association. "Manufacturers, regardless of their locality, have conceded that the East held all automobile sales records, but I am confident the West will soon win this distinction. I do not say this without foundation. The West is in an unusually prosperous condition, especially the farmers. The farmers are more interested in automobiles than heretofore, and this class of buyers will purchase a large quantity of cars this year. The Western States are paying more attention to road improvement and consequently the highways will be in better shape for touring in 1908, which undoubtedly will increase the automobile sales."

"The demand by automobile manufacturers for special high-grade springs has compelled the Cleveland-Canton Spring Company, Canton, O., to increase its facilities in this department," says Secretary H. C. Haight of that concern. A new building has just been erected to be used exclusively for the manufacture of automobile springs and has been equipped throughout in a manner designed to meet the requirements of the most exacting designers for high-grade automobile springs. The company has carefully studied the use of vanadium steel, and springs made from this steel and other high-grade alloy steels will be heated in special furnaces fitted with pyrometers and particularly designed for this work. A new testing machine has been added in this department, and improvements have been made in the fitting of springs, brought about by the purchase of a patented rolling machine exclusively used by the Cleveland-Canton Spring Company. The latter's plant has been running full time all through the recent commercial depression.

At the annual meeting of the stockholders of the H. H. Franklin Manufacturing Company, Syracuse, N. Y., the following directors were re-elected: H. H. Franklin, A. T. Brown, W. C. Lipe, E. H. Dann, G. H. Stilwell, John Wilkinson and F. A. Barton. After the stockholders' meeting, the directors re-elected the following officers: President, H. H. Franklin; vice-president, G. H. Stilwell; secretary, F. A. Barton, and treasurer, H. B. Webb. In the evening the stockholders of the company were entertained at the Century Club by Mr. Franklin. In speaking of the year's business he said that the company sold its first car in June, 1902, the total for that year amounting to $122,000, while in 1907 the sales came close to the $4,000,000 mark, and in spite of the financial stringency orders kept up well during November and December, though the first fortnight of January was dull, but picked up again immediately after, the third week of that month showing an increase of 29 per cent. over the total of the two weeks preceding.

Nearly one-third, or 199 out of the 727 cars of the 1908 model already delivered by the Packard Motor Car Company, have been equipped with limousine bodies. This is a remarkable demonstration of the growing use of the automobile as an all-the-year vehicle. It is an encouraging sign in the automobile trade that such a large portion of the Packard sales should have been of cars with inclosed bodies. The condition shows that people who are buying these cars expect to remain autoists and are buying for comfort, utility and style. Many of them have both touring and limousine bodies, as the Packard limousine is interchangeable with the touring car body on the same chassis. A peculiarity of this demand is the attention paid to the tastes and wishes of women. The modern limousine must not only furnish protection against inclement weather, but it must be a thing of beauty. Its appointment, to the smallest detail, must be above reproach. Even the ultra-fashionable horse-drawn carriage is no criterion; the buyer expects greater refinement in a new limousine motor car than in any horse carriage.

NEW AGENCIES ESTABLISHED.

Noblit & Fassett have succeeded Titman, Leeds & Company as Philadelphia agents for the Matheson and Pope-Hartford. The new concern has also taken over Titman, Leeds & Company's quarters, at the corner of Broad and Cherry streets.

During the present week the Bergdoll Motor Car Company will occupy its new three-story garage and salesrooms at the corner of Broad and Wood streets, Philadelphia. "Open House" will follow as soon as things can be whipped into shape. The Bergdoll concern handles the Welch, Imperial, Berliet and Benz cars.

Rose & Thompson, Incorporated, have purchased the interests of William H. Ulrich in the Yonkers (N. Y.) Auto Station, and have secured the sole agency in Westchester County for the Stearns, the C. G. V., and the Selden cars. The garage will be conducted in a thoroughly up-to-date manner, and a complete line of automobile supplies will be carried in stock.

The Wayne Automobile Company, Detroit, Mich., announces the establishment of 1908 agencies with the following houses: Frank A. Sanford, New York City; H. Francis Kane, Seattle, Wash.; Evans Motor Car Company, Minneapolis, Minn.; W. H. Demster Machinery Company, Kansas City, Mo.; Urch & Folsom, Ashland, Neb.; West Side Motor Company, Hamilton, O.; A. T. Wilson, Denver, Col.

The Factory Sales Corporation, 235 Randolph street, Chicago, has become the sales manager in the United States for the automobile devices manufactured by the Quincy, Manchester, Sargent Company, of that city. These devices are the Auto Cle wrench and the Q. & C. Stanwood automobile step. George T. Briggs, who has been associated with the Quincy, Manchester, Sargent Company for the past four years, has identified himself with the Factory Sales Corporation.

The Witherbee Igniter Company, of New York, has just established a branch store at 720 Main street, Buffalo, for the sale of Witherbee batteries and Wico specialties, under the management of James Barkley. General Manager A. J. Fisk, who is now on an extended trip through the West, announces that it is the company's intention to establish a complete chain of branches, and that a more than ever vigorous advertising campaign will be mapped out by John B. Rowland, who will have charge of that particular part of the business.

PERSONAL TRADE MENTION.

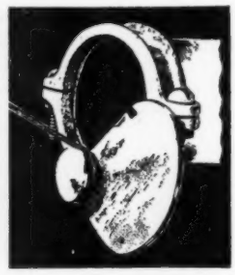
Cornelius Barrows, who represented the Fiat in Philadelphia for several years, has been appointed manager of the Fiat department of the Girard Motor Company, of that city, which concern recently secured the local agency for the foreign car.

B. C. Day, manager of the Winton branch at Chicago, is a modest personage, notwithstanding the fact that he was formerly an advertising solicitor. The extent of his natural reticence will be understood when it is related that until the other day his employers did not know that he is the son of Rear Admiral Benjamin F. Day, U. S. N., retired, of Glasgow, Va.

Announcement comes from Orange, Mass., that the Grout Bros. Automobile Company is preparing to enter on the manufacture of cars on a large scale, under the direction of Rossell Drisko, who has recently been appointed general manager. Mr. Drisko is a Boston man of wide experience in the automobile field, both as a salesman and a manufacturer. He was formerly manager of the Bay State Automobile Company, which built the Bay State Forty, and previous to that handled the Stevens-Duryea and the Queen, with the late F. F. Randall. He goes to the Grout plant with full powers, and his plans include the introduction of a number of new mechanical features.

INFORMATION FOR AUTO USERS

Reliable Priming Valve.—It frequently occurs that it becomes difficult to create sufficient suction when turning a motor over by hand, to cause it to start the aspirating nozzle of the carbureter, and to overcome this cause of trouble, J. H. Koontz & Company, Culver, Ind., are introducing an ingenious device which is adapted to be applied to the air intake of the carbureter, so as to shut this off



KOONTZ RELIABLE PRIMING VALVE.

temporarily when cranking. This is claimed to be superior to the method of priming by "tickling" the carbureter, as there is no tendency to flood or cause an overrich mixture, as it is possible to release the new priming valve the moment the motor starts. The details of this device as well as the manner of its application will be plain from the accompanying cut.

Brown Valve Grinder.—The object of this ingenious tool, the details of which are shown by the accompanying illustration, is to render the operation of grinding in valves easy and efficient, by saving time and making the work more satisfactory than is possible by makeshift methods. It is the product of the Brown Company, Syracuse, N. Y., who also make other specialties for the auto-

BROWN VALVE-GRINDING SET.

ist and repair man, and has been designed to be as simple and compact as possible, it only being necessary to remove the handle and the driver to pack it away in the tool box. In use the Brown grinder is held with the left hand, while a horizontal force is applied with the right, this imparting to the screwdriver, by means of a pinion and rack, a semi-rotary motion. Combined with the grinder is the valve lifter, consisting of a heavy brass, helical spring, equipped at either end with a bearing and clamp fixture. To accommodate varying stem diameters the clamp is provided with two set screws, which when adjusted are left that way, the thumb screw being used for holding purposes. The only pressure required on the tool is that required to overcome the force of the lifter spring, the lifter being clamped to the valve stem before beginning the operation of grinding. The lifting action disintegrates all particles of compound previously rubbed on the valve faces and seat and introduces a factor of safety which makes the operation easy and certain for the veriest tyro. The Brown valve grinding set includes these tools and a box of special Brown grinding compound. The same firm also manufactures a handy compressometer for determining the compression of a motor. It consists of a well-made 100-pound gauge with a maximum hand that remains at the highest point of compression reached when turning the motor over. It is used by screwing into the cylinder in place of the spark plug.

Battery Power Gage.—The Hoyt Electrical Instrument Works, Penacook, N. H., who are the manufacturers of the combined type of voltmeter and ammeter for dashboard mounting on a car,

HOYT BATTERY POWER GAGE.

recently described in these columns, are now bringing out an instrument that they term a "Battery Power Gage" and which will be found of considerable value by every autoist who uses batteries of any kind for ignition, as it gives him a knowledge of the condition of the car's supply of current every moment it is in use. It is, in fact, a high resistance voltmeter, designed to be permanently connected in shunt on the low-tension side of the ignition system, that is, on one side to the wire leading from the battery to the coil box, and on the other to the ground, so as to bridge it across the battery and coil circuit. As soon as the switch is closed the gage indicates its condition as revealed by its voltage, and gives that indication continuously as long as the switch remains closed or there is any current in the battery. A broken connection would immediately be shown by the pointer dropping to zero, while a poor connection making contact but part of the time would be revealed by the fluctuation of the hand. The amount of life remaining in a set of batteries can also easily be determined, as a new dry-cell gives 1 1-2 volts, and the set of six will make the reading 8 1-2 or 9 volts. It is also applicable to storage cells, as the voltage is an even more certain indication of their condition. When this drops to 5 volts, it is time to discard the cells. Owing to its high resistance, the gage itself has no effect on the life of the cells. Its appearance may be judged of from the accompanying line cut.

Ruprecht Corrector.—This is an alternating current rectifier of foreign make, of which the Auto and Supply Company, 406 Cuyahoga building, Cleveland, O., are the manufacturers' United States agents. The corrector is absolutely simple, as it has no winding or coils, makes no sparking or glare and is started or stopped merely by opening a switch. In case of current failure, the battery cannot discharge through the corrector, and the latter will immediately resume operations automatically upon the renewed flow of the current. The upkeep and attention required are practically negligible. The corrector consists of two poles, one of aluminum and the other of a composition metal, immersed in a chemical solution contained in a glass jar 5 inches in diameter. The poles are suspended from a slate top, which also carries all the connections. It is particularly designed for charging ignition accumulators, and as it has a capacity of 5 amperes, will recharge three sets of cells simultaneously.

RUPRECHT CORRECTOR.

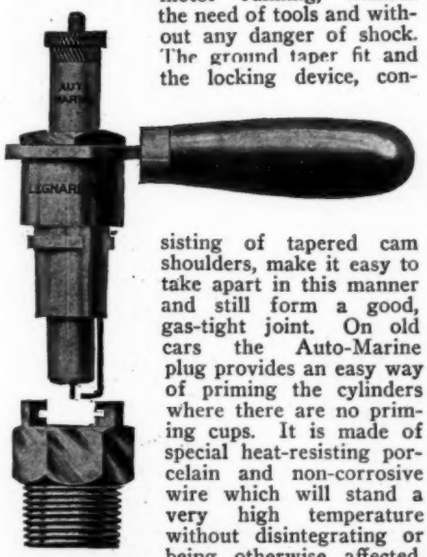
Soda and Potash Kettles.—For quickly, thoroughly and economically cleansing oil, grease and chips from all sorts of newly made small parts, such as screws, nuts, bolts, gears and the like, it is customary to dip them into a hot, alkaline solution for a short time, and to make this process convenient and efficient the Gray & Prior Machine Company, 86 Suffield street, Hartford, Conn., make gas-heated kettles of the type shown by the accompanying illustration. The solution most commonly used consists of about half a pound of common washing soda per gallon of water, the

GRAY & PRIOR SODA KETTLES.

parts being cleaned by placing in a small perforated metal basket and then lowering into the hot solution. The first cost of these kettles is considerably lower than that of the steam-heated type, and they do not require any expensive auxiliaries or installation. The gas burner for supplying the heat consists of two concentric rings, supplied by independent gas cocks so that either may be used at will, the larger taking 15 cubic feet of

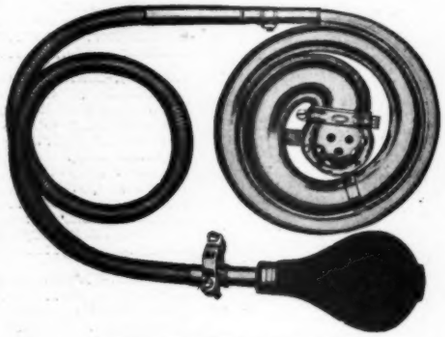
gas per hour and the smaller five, the latter being sufficient to keep the kettle hot. These kettles are listed in one size only, holding 10 gallons of solution. They will be found particularly adapted for the use of repair shops, garages and and the like, where gasoline is usually employed for this class of cleaning, and will not only effect a great saving over such a method, but are far safer.

Auto-Marine Spark Plug.—This is a new plug, one of its distinctive features being an ingenious quick-opening and locking device, the operation of which will be understood at a glance upon reference to the accompanying illustration. It is being manufactured and marketed by Legnard Brothers, Waukegan, Ill., and a patent has been applied for to cover this as well as its other points of superiority. By merely giving the insulated handle forming part of the plug one-quarter turn it is possible to lift everything but the shell out of the cylinder, examine and clean the points, test and return to place with the motor running, without the need of tools and without any danger of shock. The ground taper fit and the locking device, consisting of tapered cam shoulders, make it easy to take apart in this manner and still form a good, gas-tight joint. On old cars the Auto-Marine plug provides an easy way of priming the cylinders where there are no priming cups. It is made of special heat-resisting porcelain and non-corrosive wire which will stand a very high temperature without disintegrating or being otherwise affected. The plug was thoroughly tested out for a year in both air and water-cooled motors before being placed on the market, so that the makers are confident that it will live up to every claim made for it, as no form of test that either the makers themselves could think of nor their friends or critics suggest was omitted in trying it out during that period. It is manufactured in all standard threads and sells for $1.50.



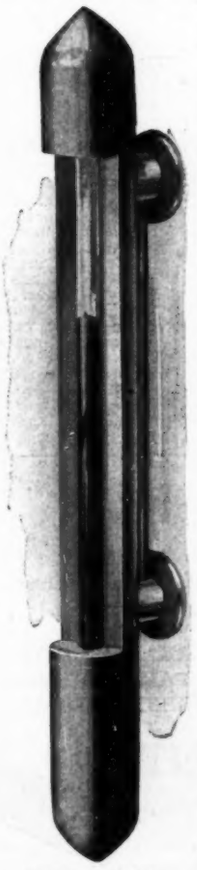
AUTO-MARINE PLUG.

The Le Python Horn.—This represents quite a radical departure from current designs in automobile horns, as will be apparent at a glance at the illustration. In place of the usual spreading bell mouth, which not only serves as a receptacle for dirt and flying particles, and which also offers such an area facing forward that the wind resistance at 40 miles an hour and over is in excess of that of the horn bulb, there is a small globe-shaped end situated within the spiral of the horn and perforated to permit the escape of the sound. No matter how fast the car travels, there is no back pressure on the bulb. Another feature of this horn is its peculiar, long-drawn-out tone, caused by the air passing through the gradual curves in the coils of the spiral. It can be readily attached to the dash or side of the frame and does not interfere with the mud-guard or the raising of the hood, as it measures only three inches through.


LE PYTHON HORN AND BULB.

The bracket is so constructed that the horn complete may be instantly detached from the car for washing or similar purposes, although the design is such that it is next to impossible for water to get into it. The Le Python is of French manufacture and is being extensively adopted by foreign makers as part of the standard equipment of their cars. It is handled in this country by the Post & Lester Company, Hartford, Conn., who are exclusive agents for a large number of both foreign and American auto accessory specialties of different kinds.

Lipman Tank Gauge.—"It is a necessity, not a luxury," say the makers of this new device, the Beloit Supply Company, of Beloit, Wis., and this is something with which the average autoist will readily agree, as a convenient means of ascertaining just how much fuel there is in the tank at any given time, is something that is really needed on every car. The Lipman gauge is simplicity itself, as it works on the principle of displacing the air and thus has no moving parts of any nature. It may be placed above or below the tank level, or at either side, and only requires to be perpendicular. Connection to the tank is made by a flexible copper tube, which enters the tank at the top and extends to within half an inch of the bottom. As the gasoline rises in the tank it naturally does likewise in the tube, forcing the air in the latter into the bulb of the gauge, the pressure thus created forcing the liquid of the gauge upward in proportion to the depth of the fuel. As the latter recedes the indicating column of the gauge does likewise and always in the same proportion. Connection is made from behind, so that nothing shows on the dash but the gauge, as illustrated in the accompanying cut.


LIPMAN TANK GAUGE.

Protection Bumper.—Ever since the present type of car came into vogue the necessity for something that would prevent the radiator and headlights from feeling the effects of contact with suddenly backed wagons, other machines in the garage and similar accidents, has been apparent to every autoist. To meet this demand, J. H. Sager & Company, Rochester, N. Y., manufacturers of the well-known Sager equalizing springs, are now placing on the market a simple and ingenious device known as the "Protection Bumper," the arrangement of which will be apparent from the accompanying illustration, showing it ready to put on a car. The attachment is practically universal, as it is made adjustable and thus can be applied to any car without trouble. It will be evident that it not only serves as a protection to the lamps and radiator, but also prevents a pedestrian getting under the wheels of the car. The Protection Bumper is made in two styles, black and brass, the former being designed to be painted to match the finish of the car. The latter is not a brass-plated tube, but is made of steel-lined brass tubing. The arms holding the tubing are raised to give extra protection and are made of special metal, highly polished. The rear ends of the arms rest upon two coiled springs encircling the lower end of an L-shaped stud bolt, securely fastened to the frame. These springs absorb the shock of a collision without damage to the bumper or the car.

SAGER'S PROTECTION BUMPER.

Acetylene Signs.—An extremely attractive form of night and day sign adapted to be lighted by acetylene gas has just been perfected and placed on the market by the Avery Portable Lighting Company, 18-22 Martin street, Milwaukee, Wis. It is equipped inside with two small acetylene burners which are supplied with gas through a small pipe attached to the bottom of the sign. The latter can be attached to the back of the car or to the radiator, by means of screws, it having been designed particularly with this in view, being a substitute for the tail-light when placed on the rear. The pipe line leading from the Autogas tank to the headlights can be easily tapped and an additional connection made with a pipe line leading to the sign; the front of the latter is made of stained glass, the lettering being white on a red background, the letters being about two inches high, so that they are plainly visible by day. The night effect is striking.

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